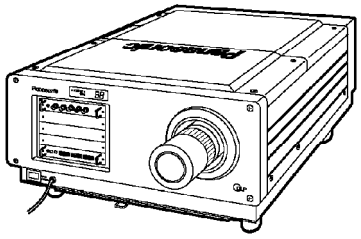
ORDER NO. VED0103309C5

Service Manual

DLP™ based Projector

PT-D8500U / PT-D8500E



SPECIFICATIONS

The service technician is required to read and follow the "Safety Precautions" and "Important Safety Notice" in this service Manual.

Specifications

Power supply:
200 V – 240 V AC (single-phase, 3-wire), 11 A (Max.)

Power consumption:
1.9 kW
Approx. 2.8 W during standby (when cooling fan is stopped)

Operating environment temperature:
0 °C – 40 °C : NORMAL lamp power
0 °C – 35 °C : HIGH lamp power
If the power is turned on when the temperature is around 0 °C, a warming-up time of about five minutes will be required before a picture can be projected.

Storage environment:
Temperature: –25 °C – 65 °C Humidity: 10 % – 80 %
(with no condensation)

DMD™ elements:
Element size: 0.9 inches (aspect ratio : 4:3)
Display method: 3 DMD™ elements, DLP™ system
Pixels: 1 024 dots × 768 lines, (3 sheets)

Lamp:
1 200 W Xenon lamp
(recommended replacement period 1 000 hours)

Luminosity:

6 000 lm (ANSI) :	LAMP POWER NORMAL
7 000 lm (ANSI) :	LAMP POWER HIGH

Projection method:
Ceiling or Floor / Front or Rear (menu selectable)

Keystone compensation:
Max. elevation angle : ±10° or less

Optical axis shift volume:
Top and bottom : 10/0 – 0/10
Left and right : 8/2 – 2/8 (electromotion)

Projection screen size:
Between 2.5 m and 15 m when separate zoom lens is fitted
Between 2.5 m and 4.5 m when separate fixed focus lens is fitted

Screen aspect ratio:
4:3 when separate zoom lens or fixed focus lens is fitted

Input signals:
Standard analog RGB input BNC termination × 5

Video signal input block Impedance:	75 Ω
Sync signal input block Impedance:	75 Ω
R/PR/Cr	0.7 V [p-p]
G/Y	0.7 V [p-p]
(1.0 V [p-p] when SYNC ON G/Y signal is input)	
B/PB/Cb	0.7 V [p-p]
Composite sync	0.6 V [p-p] – 4.0 V [p-p]
Separate sync	0.6 V [p-p] – 4.0 V [p-p]

Analog RGB input signal
fH : 15 kHz–100 kHz, fV: 24 Hz–120 Hz, dot clock frequency: 20 MHz–162 MHz
Color difference input signal
Applicable formats:480i, 576i, 480p, 720/60p, 1080/60i(1035/60i)1080/50i, 1080/30p, 1080/25p, 1080/24p, 1080/24sF

With ET-MD95VM2 video signal (NTSC, NTSC4.43, PAL, SECAM,PAL-M, PAL60, PAL-N) input module (sold separately) installed

Video signal	1.0 V [p-p]	Impedance: 75 Ω BNC termination
Y signal	1.0 V [p-p]	Impedance: 75 Ω BNC termination
C signal	0.286 V [p-p]	Impedance: 75 Ω BNC termination
Cb signal	0.7 V [p-p]	Impedance: 75 Ω BNC termination
Cr signal	0.7 V [p-p]	Impedance: 75 Ω BNC termination

With serial digital input module (sold separately) installed

ET-MD95SD1	(for 480i/576i)	
SERIAL IN	(SMPTE259M)	BNC termination
SERIAL OUT	(SMPTE259M)	BNC termination
ET-MD95SD2	(for 480p/480i/576i)	
SERIAL MAIN IN/SUB IN(SMPTE259M/294M)		BNC termination
SERIAL MAIN OUT/SUB OUT(SMPTE259M/294M)		BNC termination
ET-MD95SD3	(for HD SDI)	
HD-SERIAL IN(SMPTE292M)		BNC termination
HD-SERIAL OUT(SMPTE292M)		BNC termination

With ET-MD95T TMDS input module(sold separately)installed
MDR26 connector
Applicable signals SVGA, XGA, SXGA

Contrast ratio:
450:1 (100% black-and-white pattern)

Connection terminals:
3 input module connection slots

Analog RGB input	BNC termination × 5
RS-232C input/output connectors	D-SUB 9-pin × 2 for computer control
REMOTE IN 1 connector	D-SUB 9-pin for external control
REMOTE 2 IN/OUT terminals	M3 pin jack × 2 For wired remote control unit and serial control

Power cord length: 2.5 m
Cabinet: Aluminium, plastic (denatured)
Weight: 80 kg (not including separate projection lens)
Dimensions: 68 cm (W) × 39 cm (H) (including legs) × 97.3 cm (D)

<Remote control unit>
Number of functions: 34 (including lighting function)
Power supply: 3 V DC (AA batteries × 4)
Operating range:
Within approx. 12 m directly in front of receptor (when operated as wireless unit)
Within 15 m (when operated as wired unit)
Weight: Approx. 350 g (including batteries)
Dimensions 14.0 cm (W) × 3.6 cm (H) × 18.1 cm (L)

Accessories:

Remote control unit :	1
AA-size batteries:	4
Remote control cable (15 m):	1
Remote control unit strap:	1

Operating equipments:

Video signal input module (NTSC, NTSC4.43, PAL, SECAM, PAL-M, PAL60, PAL-N):	ET-MD95VM2
Serial digital input module (480i/576i):	ET-MD95SD1
Serial digital input module (480p/480i/576i):	ET-MD95SD2
HD-serial digital input module (HD SDI):	ET-MD95SD3
TMDS input module:	ET-MD95T
Projection zoom lenses:	ET-D95LE1, ET-D95LE2, ET-D95LE3
Projection fixed focal lens:	ET-D95LE9
Replacement lamp unit:	ET-LAD8500
Ceiling mount bracket:	ET-PKD95
Dual stacking mount bracket:	ET-DFD95

- Design and specifications are subject to change without notice.
- Weight and dimensions shown are approximate.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

For USA

IMPORTANT SAFETY NOTICE

There are special parts used in Panasonic DLP™ based Projectors which are important for safety. These parts are marked ⚠ on the interconnection diagram. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of PANASONIC BROADCAST& TELEVISION SYSTEMS COMPANY.

Caution: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Warning: To assure continued FCC emission limit compliance, use only the provided grounded power supply cord and shielded interface cable with ferrite core when connecting this device to a computer. Also, any unauthorized changes or modifications to this equipment would void the users authority to operate this device.

Note: This DLP™ based Projector may only be used in a commercial, business or industrial environment.

1. Safety Precautions

1.1. General Guidelines

- For continued safety, no modification of any circuit must be attempted.

- Unplug the power cord from the power outlet before disassembling this projector.

- It is advisable to use an isolation transformer in the AC power line before the service.

- Observe the original lead dress during the service. If a short circuit is found, replace all the parts overheated or damaged by the short circuit.

- After the service, all the protective devices such as insulation barriers, insulation papers, shields, and isolation R-C combinations must be properly installed.

- After the service, check the leakage current to prevent the customer from getting an electric shock.

1.2. Leakage Current Check

1. **Prepare the measuring circuit as shown in Fig.1.**
   Be sure to use a voltmeter having the performance described in Table 1.

Fig. 1

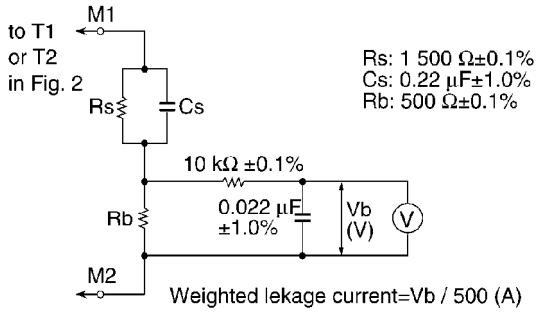
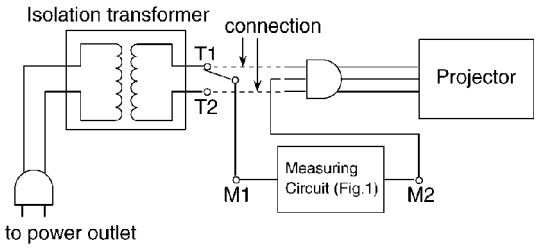


Table 1

	Performance
Voltmeter (rms reading)	Accuracy: ≤ 2% Input resistance: ≥ 1 MΩ Input capacitance: ≤ 200 pF Frequency range: 15 Hz to 1 MHz

2. **Assemble the circuit as shown in Fig. 2. Plug the power cord in a power outlet.**

Fig. 2

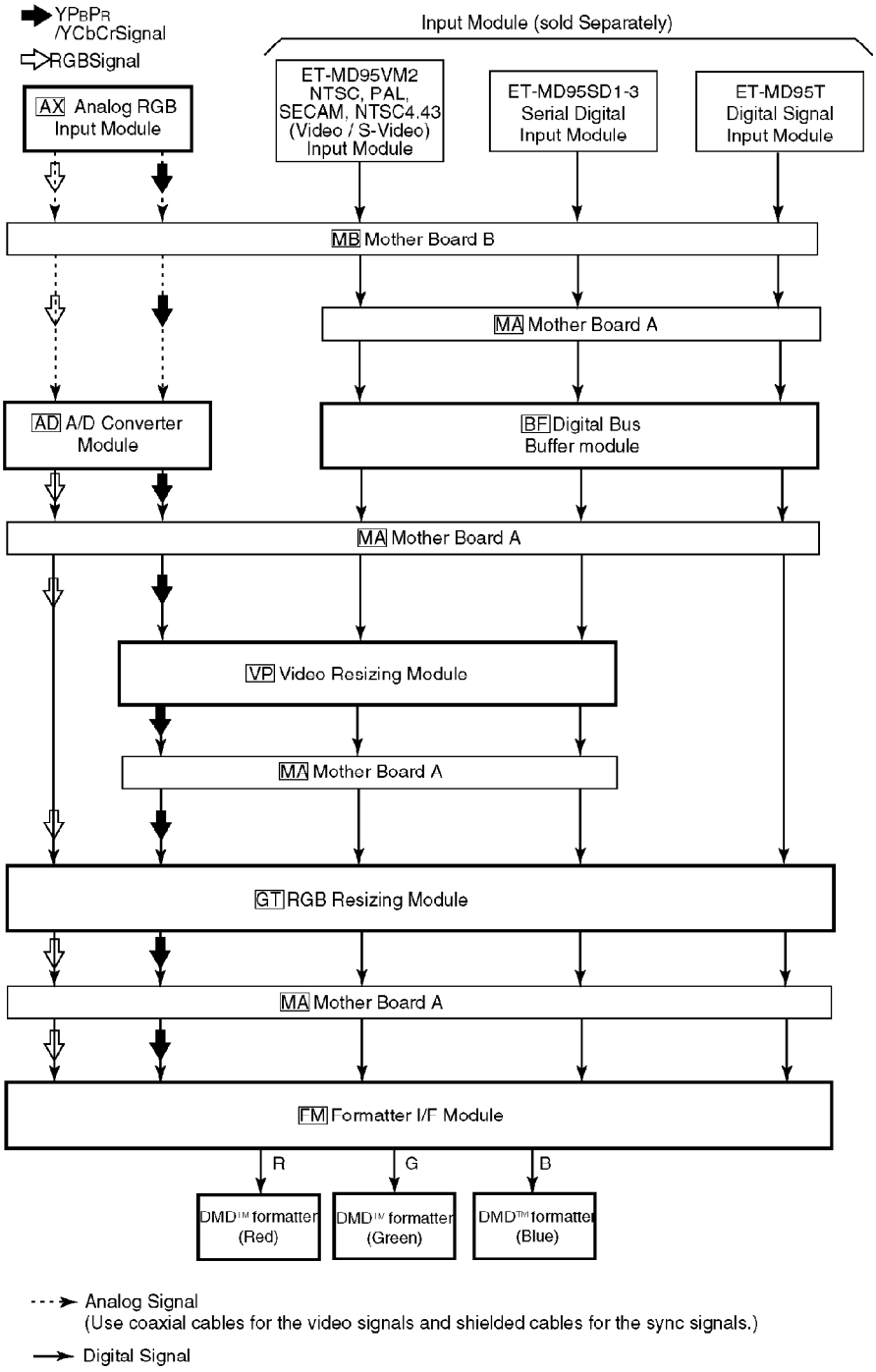


3. **Connect M1 to T1 according to Fig. 2 and measure the voltage.**
4. **Change the connection of M1 from T1 to T2 and measure the voltage again.**
5. **The voltmeter must read 0.375 V or lower in both of steps 3 and 4. This means that the current must be 0.75 mA or less.**
6. **If the reading is out of the above standard, the projector must be repaired and rechecked before returning to the customer because of a possibility of an electric shock.**

2. Operating Instructions

3. Signal System diagram

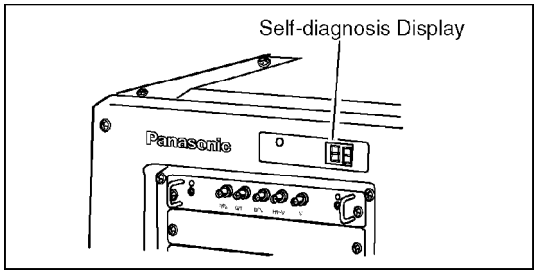
The projector employs a single RGB/YPBPR input. NTSC, NTSC4.43, PAL, SECAM, PAL-M, PAL60, PAL-N (video/S-video) signals, serial digital (480i, 576i) signals, and PC digital signals can be input by inserting separately sold inputmodules.



4. Self-Check Function

This projector has a self-check function indicating information by a two-digit code when an abnormal condition occurs. (Refer to the illustration at right.) When a malfunction occurs, this

function can be used to narrow down the modules or partsto be checked while referring to the table below.



Codes, Abnormal Contents, and Modules or Parts to be mainly checked

Codes	Items	Abnormal Contents	Modules or Parts to be mainly checked
AC	AC IN ERROR	Abnormally low AC voltage	①KA module, ②LF module, ③CM module
bE	BALLAST ERROR	Ballast power supply malfunction	①Lamp unit, ②Ballast power supply module, ③LF module
※1 CE	TEMPERATURE ERROR	DMD™ temperature abnormality	①Each fan, ②FM module, ③DMD™ Assembly
EP	EEPROM ERROR	EEPROM abnormality	①CM module
FE	FAN STOP	Fan stop	①Each fan, ②LF module
FL	FLASH ERROR	FLASH ROM abnormality	①CM module
Ar	AR ERROR	RGB input slot abnormality	①AX module, ②CM module
I 5	I IC ERROR5	AD and VP modules abnormality	①AD module, ②VP module, ③CM module
I 6	I IC ERROR6	Format abnormality	①FM module, ②CM module, ③DMD™ Assembly
I 7	I IC ERROR7	Power supply, NR, LF, and SC modules abnormality	①KA module, ②NR module, ③LF module, ④SC module, ⑤CM module
I 8	I IC ERROR8	GT module abnormality	①GT module, ②CM module
Lb	LOW B STATE	LOW power supply malfunction	①Alpha power supply, ②PR module, ③LF module
LS	LAMP STATE	LAMP abnormally lit up	①Lamp unit, ②Ballast unit, ③LF module
OP	FAIL SAFE	Open cabinet, open duct	①Removal detecting switch for top-rear cabinet, ②Removal detecting switch for duct, ③LF module
rA	RAM ERROR	RAM abnormality	①CM module
SE	SHUTTER ERROR	Mechanical shutter malfunction	①LF module, ②Mechanical shutter block

※1: When the code "CE" appears, check that the ambient temperature of the projector is within its specification for this model.

:Turnign on the power at an ambient temperature of about 0 °C may require a warm-up time of approximately five mimutes to start projecting a picture, During this warm-up,the code “CE”, will appear on the self diagnosisdisplay. After the warm-up, the self -diagnosis display will turn off and the projector will project a picture. The POWER button on the remote control unit may be disabled during the operation of the self-diagnosis display. In this case, turn off theMAIN POWER switch, then turn it on again, and then press the POWER button on the remote control unit to turn on the projector.

Even if there is no problem,the codes below may appear. As mentioned on the previous page, turning on the power at an ambient temperature of about 0 °C may require a warm-up time of approximately five minutes to start projecting a picture.During this warm-up, the code “CE” will appear on the self-diagnosis display. In this case,note that there is no problem.

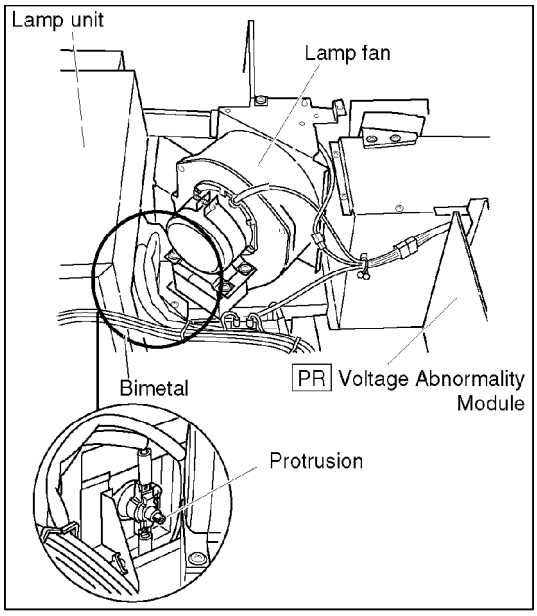
Codes	Items	Contents
※2 FC	FAN COOLING	Cooling mode at power off

※2: The lamp cooling fan will continue to operate for approximately five minutes after turning off the power.
At the same time, the self-diagnisis display "FC" will blink.

5. Function for Safety

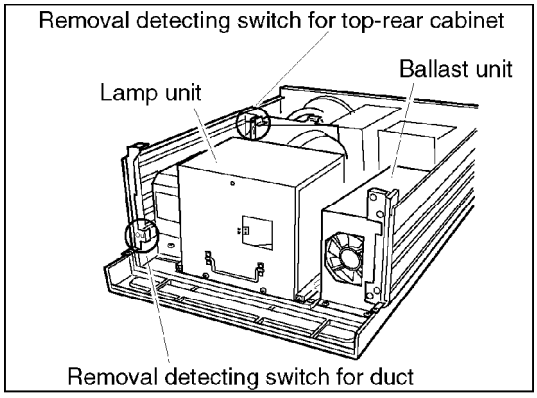
5.1. Temperature Cetection inside the Lamp Unit

This projector has the bimetal contacting the lamp unit to protectothe lamp.if the temperature of the lamp unit exceeds 100 °C, the bimetal will operate to turn off the power. (standby condition) The installde position of the bimetal isshown in the illustration at right.



5.2. Interlock Switch

To ensure safety, this projector is designed so that the power cannot be turned on without the top-rear cabinet or duct or under their imperfect installation. If removing the rop-rear cabinet during the operation of the projector, the power willbe turned off.



6. Service Mode

when setting the items below, set this projector to the serviceman mode.

Items			Contents
MENU	OPTION	LAMP RUNTIME	Clears the lamp runtime after replacing the lamp. Refer to page 45.
	SPECIAL	CUT OFF-R,G,B	Cuts off each color of R, G, and B.
		ENTRY SIGNAL CLEAR	Clears all the registered signals.
		LAMP ON MODE	Selecting the lamp power up function. NORMAL: Power up function will be NORMAL when the power is turned on. LAST: Power up function will be last mode which set on LAMP POWER of OPTION MENU when the power is turned on.
		REMOTE1 MODE	Switches the control mode of pin 8 of the REMOTE 1 terminal. (For *1, refer to the section "Using REMOTE IN 1 Terminal" in the Operating Instructions. *2 has the same function as the PIC MUTE button on the remote control unit.)
	Special Mode Screen		Mode 0 Screen / Mode 1 Screen

Setting to Serviceman Mode

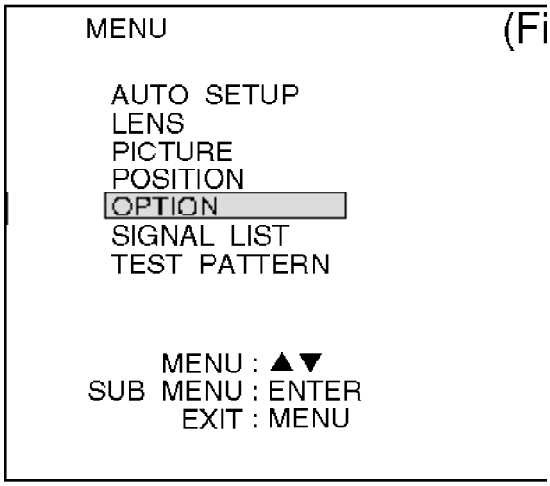
(1) Press the MENU button.

-the MENU screen will be displayed as shown in Fig. 1 at right.

(2) Select OPTION, using the UP (▲) and DOWN (▼) arrow buttons.

(3) Press the ENTER button.

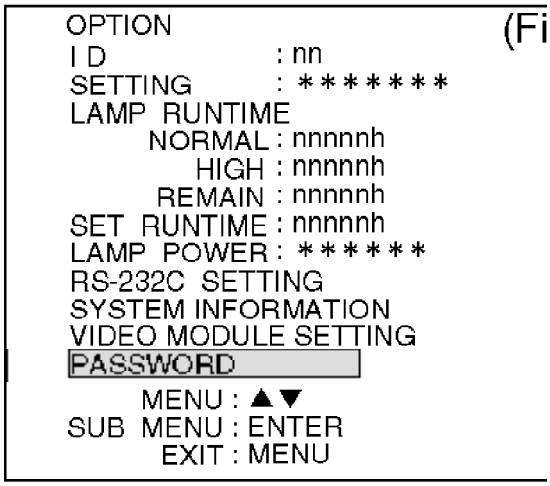
-The OPTION screen will be displayed as shown in Fig. 2 at right.



(4) Select PASSWORD, using the UP (▲) and DOWN (▼) arrow buttons.

(5) Press the ENTER button.

-The PASSWORD screen will be displaye as shown in Fig. 3 at right.

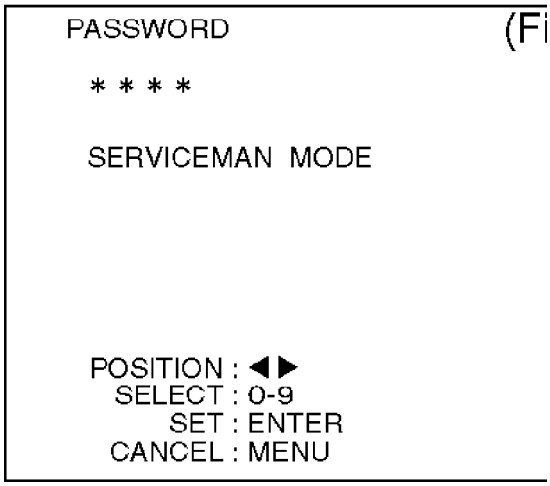


(6) Input the password "1565", using the numeric buttons (0-9) on the remote contorol unit.

(7) Press the ENTER button.

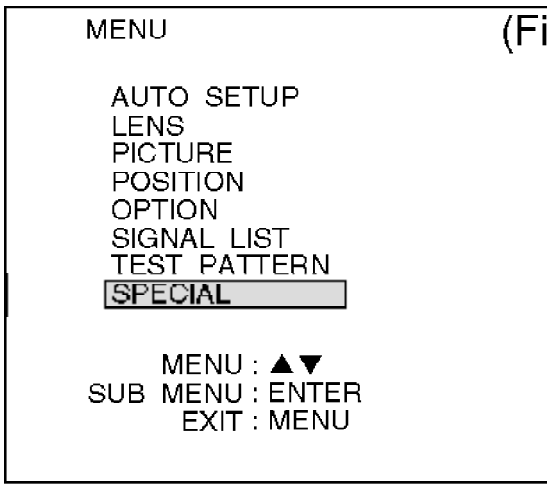
-The word "SERVICEMAN MODE " will be displayed and the screen will return to the OPTION screen.
The tifferences between the serviceman mode and the normal mode are described below.

MENU screen:
The word "SPECIAL" is not displayed at the normalmode, but it displayed and can be selected at the serviceman mode.



(8) To change from the OPTION screen to the SPECIAL mode, press the MENU button to return to the MENU screen, then select SPECIAL using the UP (▲) andDOWN (▼) arrow buttons, and then press the ENTER button.

(9) To cancel the serviceman mode, press the POWER button on the remote control unit or the projector operating panel to set the projector to the standby mode.



7. Cautions for Service

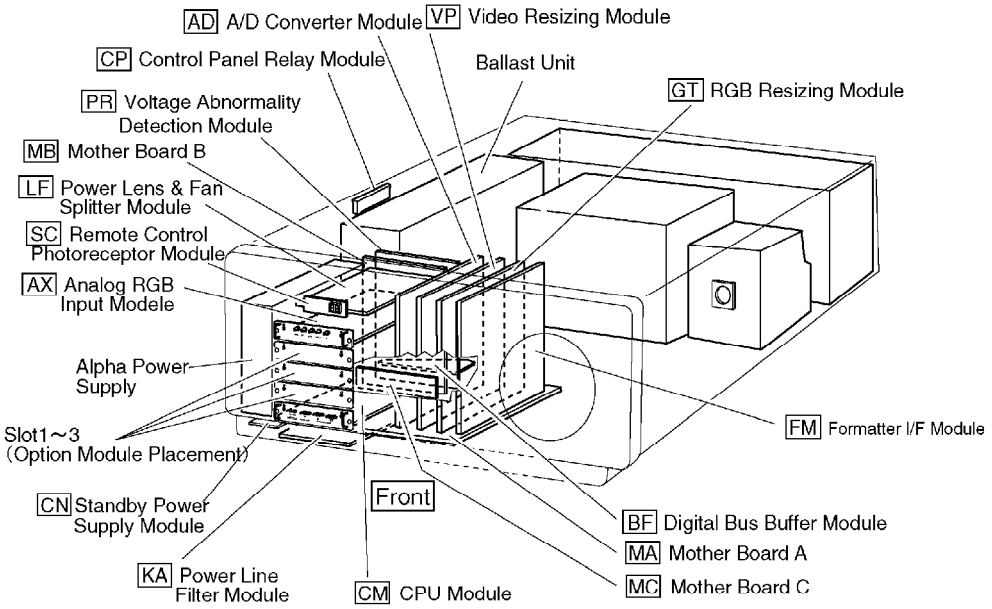
- During the operation of the cooling fan, do not unplug the power cord from the outlet and avoid a cutoff in the power lines such as the open of a circuit breaker.
- When turning off the projector, press the POWER button on the remote control unit or the projector operating panel (The POWER indicator becomes red.) and wait for about five minutes until the cooling fan stops.
- After making sure that the cooling fan stops, turn off the MAIN POWER switch on the front of the projector.

Warning:

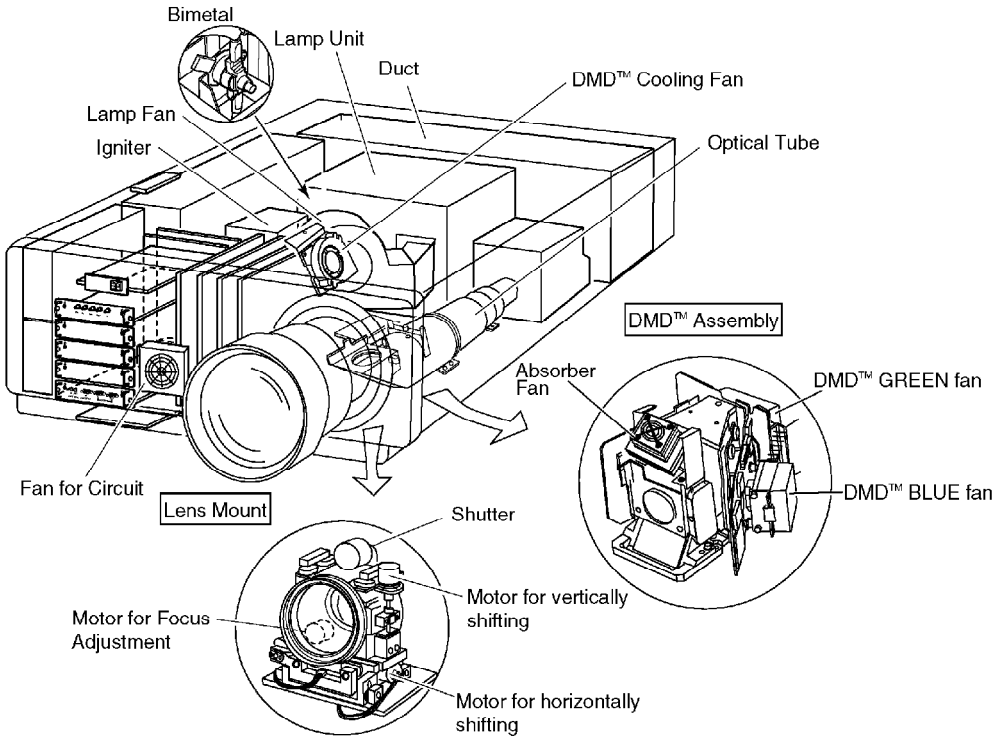
- Because this projector projects extremely strong light, never peep the lens tube to prevent the damage of your eyes.

8. parts Location

8.1. Parts Location



8.2. Location of Fan and Optical System



9. Lamp Unit Replacement

Important Points to keep in mind
When replacing the lamp unit with a new one, pay attention to the following points.

Warning:

- Because the temperature of the lamp unit is elevated immediately after its use, a direct touch to it may cause burns. After the lamp has cooled enough, replace the lamp unit.

Cautions for Lamp Unit Replacement:

- Handle the removed old lamp unit carefully. If abusing it, it may have a risk of explosion.
- Ware gloves when replacing the lamp unit.
- When replacing the lamp unit becomes necessary during the operation of the projector, follow the procedure below to turn off the power and wait until the lamp unit cools completely.

1. Press the POWER button on the remote control unit or the projector operating panel to turn off the power.

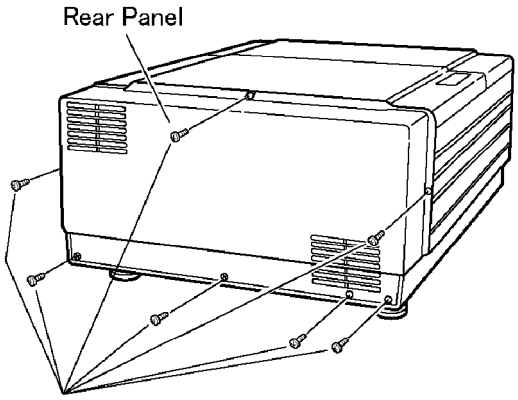
2. Wait for about five minutes until the cooling fan stops.
*** The lamp cooling fan will continue to operate for about five minutes after turning off the power. During the operation of the cooling fan, do not unplug the power cord from the outlet and avoid a cutoff in the power lines suchas the open of a circuit breaker.**

3. After making sure that the cooling fan stops, turn off the MAIN POWER switch on the front of the projector

4. Unplug the power cord from the outlet.

9.1. Replacement Procedure

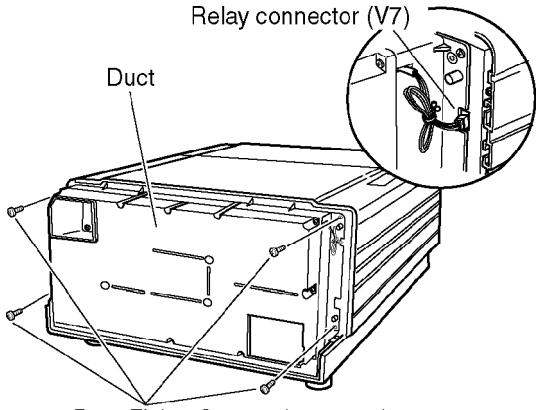
1. Remove the rear panel, unscrewing the seven screws fixing it.



Rear Panel Fixing Screws (7 screws)

2. Disconnect relay connector V7 of the duct fan motor.

3. Remove the duct, unscrewing the four screws(black) fixing it.



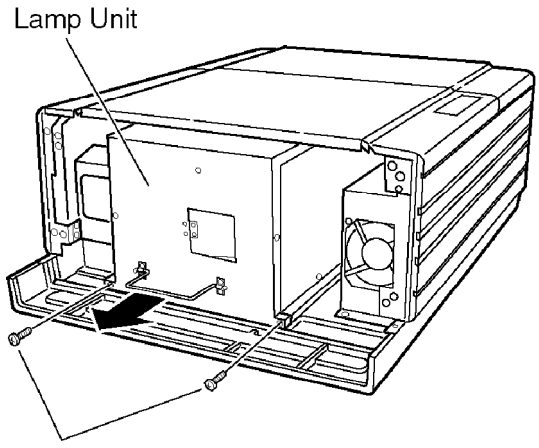
Duct Fixing Screws (4 screws)

4. Unscrew the two screws fixing the lamp unit.

5. Check that the lamp unit and its region cool completely.

Warning:

- Because the temperature of the lamp unit is elevated immediately after its use, a direct touch to it may cause burns.



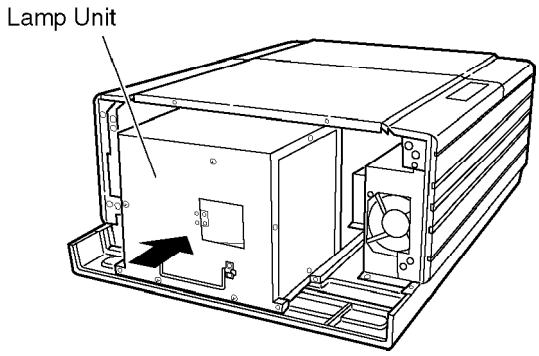
Lamp Unit Fixing Screws (2 screws)

6. Pull out the lamp unit slowly by its handle.

- Do not touch the glass surface of the lamp unit.

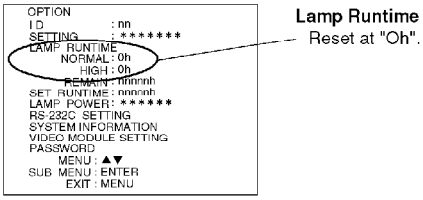
7. Install a new lamp unit, following steps 1 through 6 in reverse.

- Do not sandwich the wires and others when installing the lamp unit, duct, and rear panel.



After replacing the lamp unit with a new one, be sure to reset the lamp runtime of the projector at “0h”.If not resetting the lamp runtime, even the projector with the new lamp will shut down about ten minutes after turning onthe power.

On-screen Display

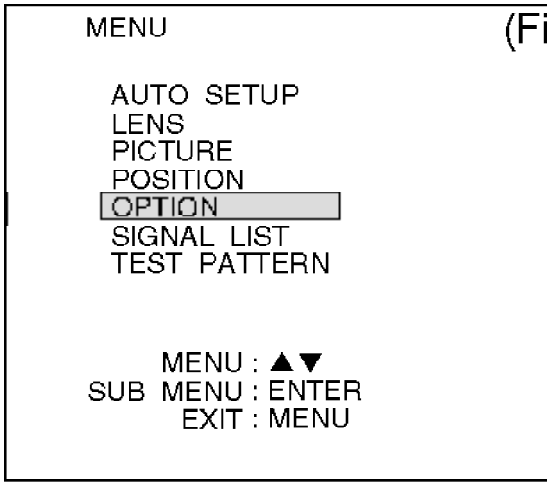


The resetting procedure of the lamp runtime is described on the next page.

9.2. Resetting Procedure of Runtime

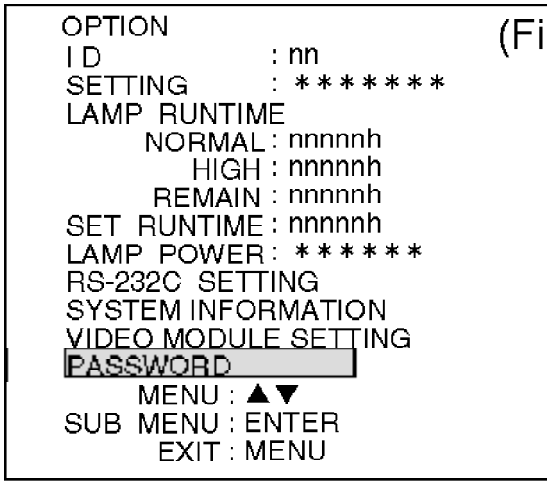
(1) Press the MENU button.

-The MENU screen will be displayed as shown in Fig. 6 at right.



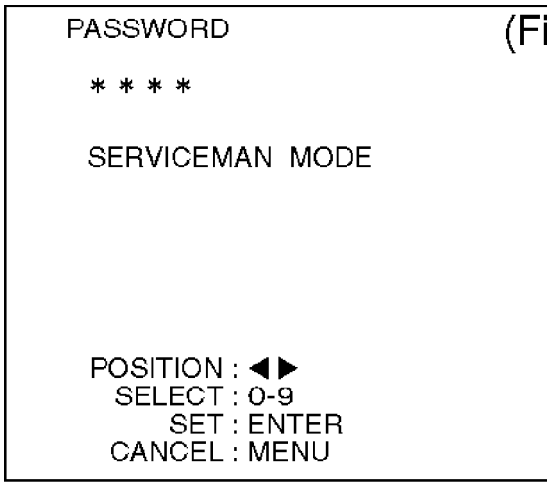
(2) Select OPTION and press the ENTER button.

-The OPTION screen will be displayed as shown in Fig. 7 at right.



(3) Select PASSWORD and press the ENTER button.

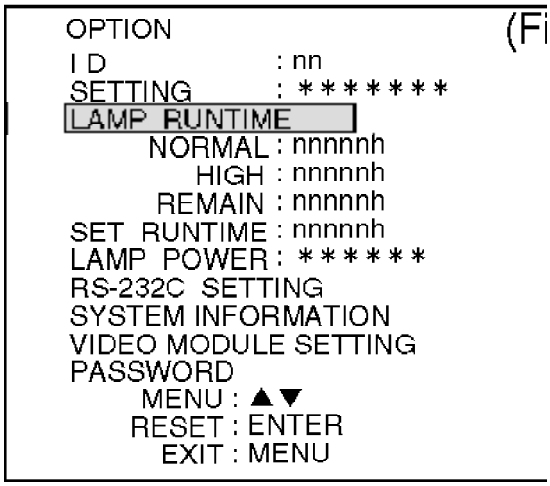
-The PASSWORD input screen will be displayed as shown in Fig. 8 at right.



(4) Input the password “1565” using the numeric buttons (0-9) on the remote control unit, and press the ENTER button.

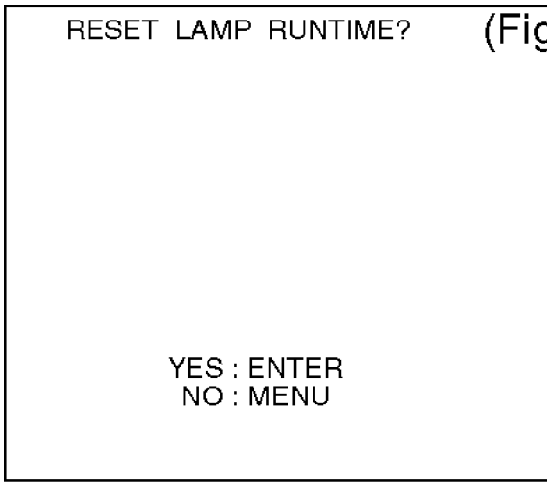
-The projector will be set to the serviceman mode.

-The screen will return to the OPTION screen as shown in Fig. 7 at right.



(5) Select LAMP RUNTIME and press the ENTER button.

-The RESET LAMP RUNTIME screen will be displayed as shown in Fig. 10 at right.

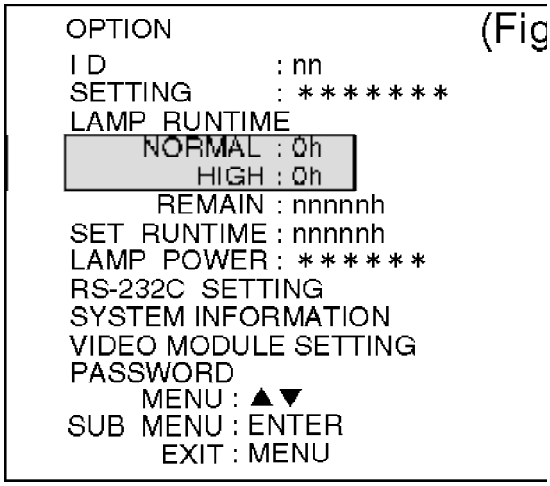


(6) Press the ENTER button.

-The reset will be completed and the screen will return to the OPTION screen as shown in Fig. 11 at right.
NORMAL and HIGH of LAMP RUNTIME will be reset at “0h”.

(7) Press the POWER button.

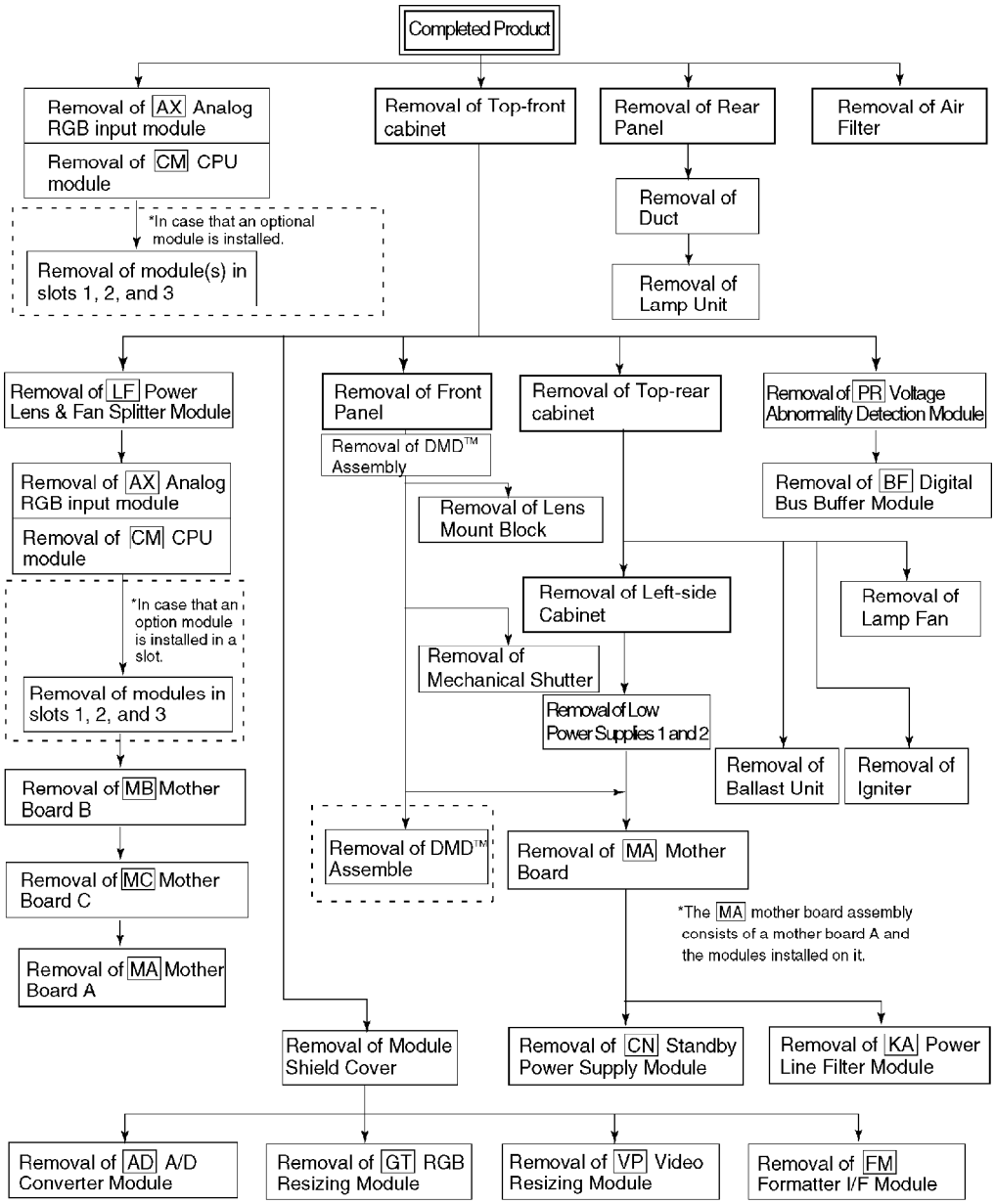
-The projector will be set to the standby mode and the serviceman mode will be canceled.



10. Disassembly Instructions

10.1. Disassembly Procedure

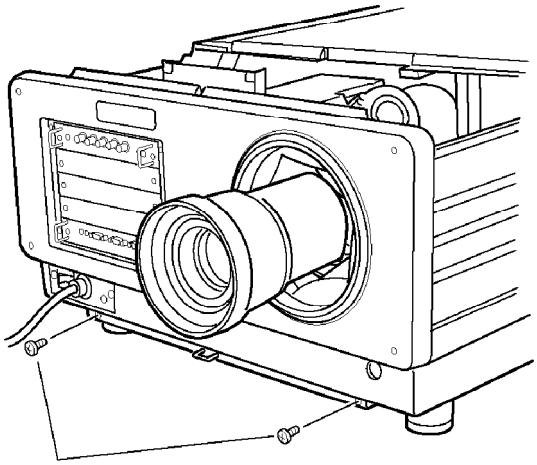
The flowchart below shows the disassembly procedure. For assembly, follow the disassembly procedure in reverse.



Power Circuit Fuse
This projector has a power switch functioning as a circuit breaker and does not have a fuse in the AC input circuit. However, a fuse is placed in the power supply unit. If the power supply unit fails, replace it by its unit.

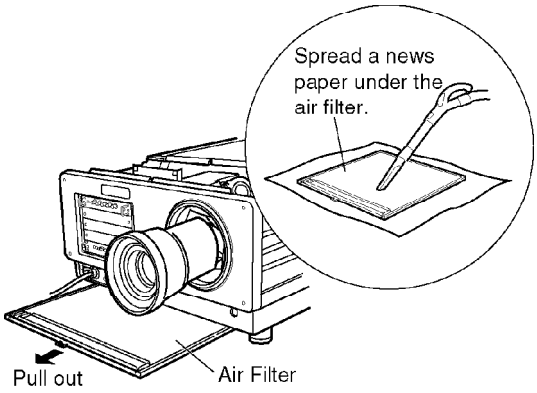
10.2. Air Filter Cleaning

1. Unscrew the two screws (black) fixing the air filter.



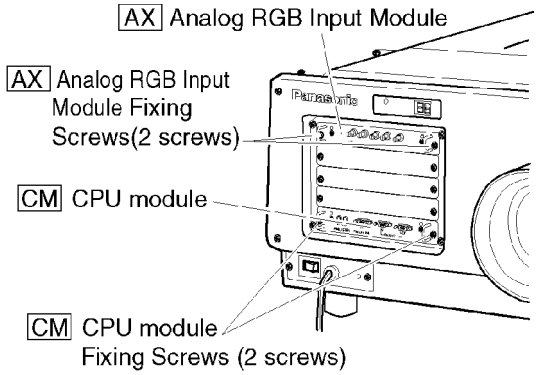
2. Pull straaight out the air filter toward the front side.

3. Clean the air filter by the vacuum cleaner.

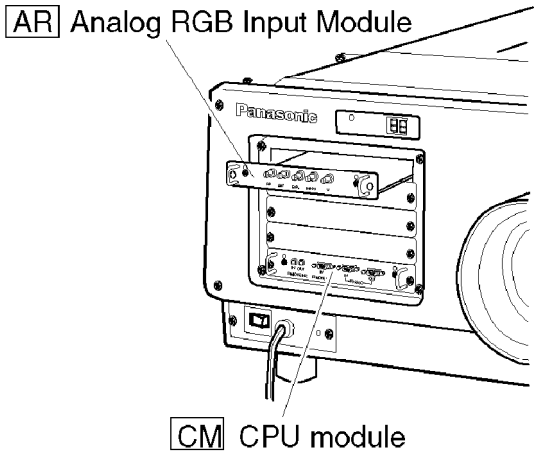


10.3. Removal of [AX]Analog RGB Module and [CM] CPU Module

1. Unscrew the screws (two screws per module) fixing the [AX] analog RGB input module and [CM] CPU module.

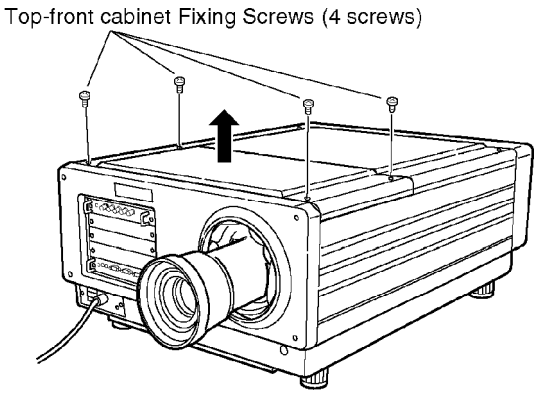


2. Pull straight out the [AX] analog RGB module and [CM] CPU module toward the front side.



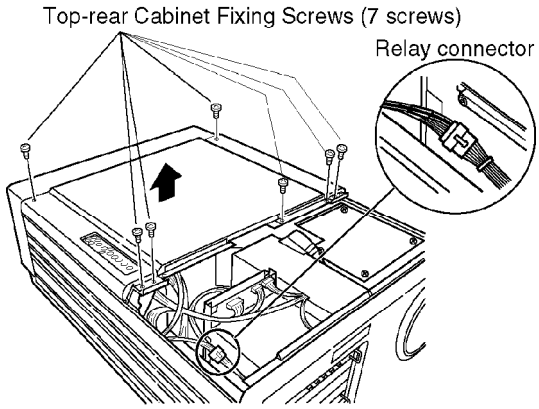
10.4. Removal of Top-front Cabinet

1. **Remove the top-front cabinet, unscrewing the four screws (silver) fixing it.**



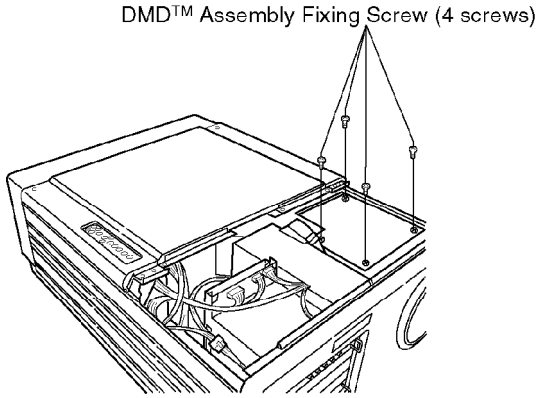
10.5. Removal of Top-rear Cabinet

1. **Remove the top-front cabinet, referring to the section “Removal of Top-front Cabinet.**
2. **Disconnect the relay connector for operation switch.**
3. **Remove the top-rear cabinet, unscrewing the seven screws (silver) fixing it.**



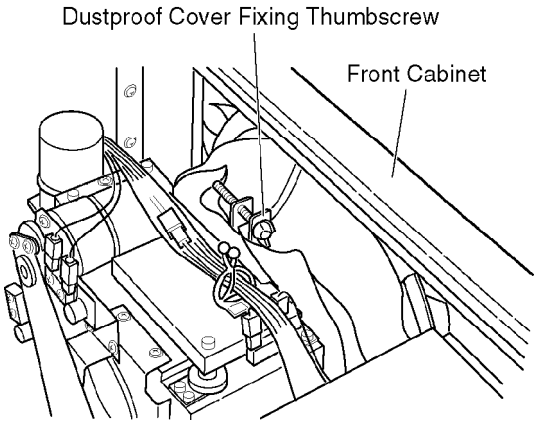
10.6. Removal of DMD Assembly Cover

1. **Remove the DMD™ assembly cover, unscrewing the four screws fixing it.**

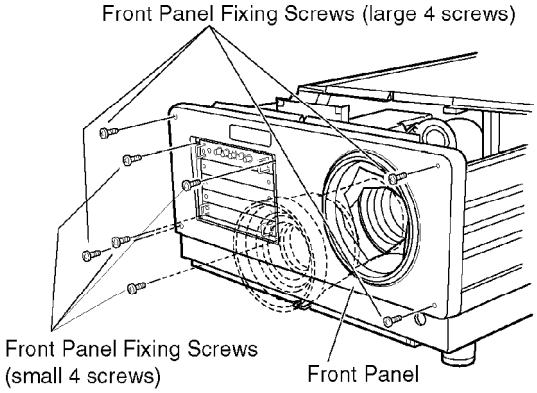


10.7. Removal of Front Panel

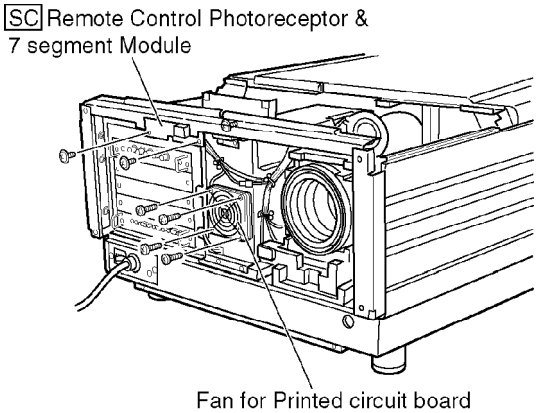
1. **Remove the lens.**
2. **Remove the top-front cabinet, referring to the section “Removal of Top-front Cabinet”.**
3. **Remove the dustproof cover from the lens mount block in the cabinet, looseing the thumbscrew fixing the cover.**



4. Remove the front panel, unscrewing the eight screws (large 4 screws, small 4 screws of silver).



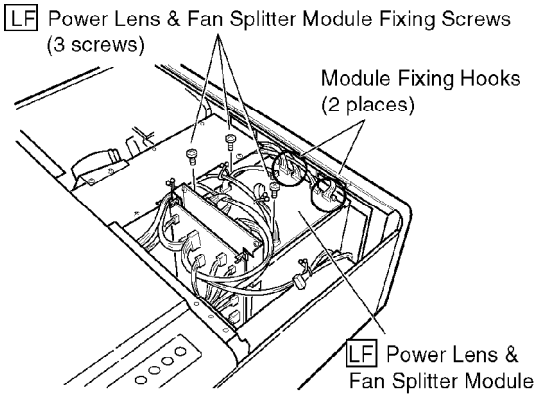
Note:
It is possible to Check the remote control photoreceptor module, and fan for printed circuit board.



10.8. Removal of [LF] Power Lens & Fan Splitter Module

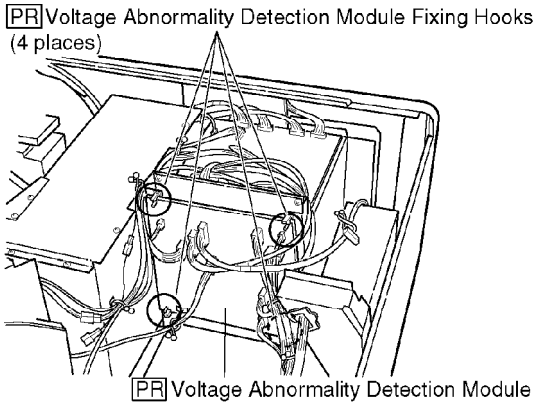
1. Remove the top-front cabinet, referring to the section “Removal of Top-front Cabinet”.

2. Disconnect all the connectors on the [LF] power lens & fan splitter module.
3. Remove the [LF] power lens & fan splitter module from the hooks (2 places), unscrewing the three screws fixing the module.



10.9. Removal of [PR] Voltage Avnormality Detection Module

1. Remove the top-front cabinet, referring to the section “Removal of Top-front Cabinet”.
2. Disconnect all the connectors on the [PR] voltage abnormality detection module.
3. Remove the [PR] voltage abnormality detection module from the hooks (4 places).



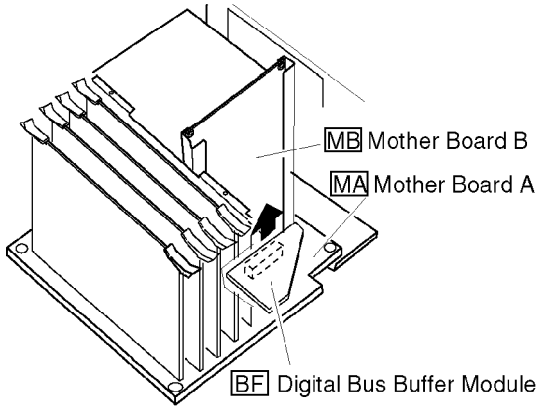
10.10. Removal of [BF] Digital Bus Buffer Module

1. Remove the top-front cabinet, referring to the section “Removal of Top-front Cabinet”.
2. Remove the [PR] voltage abnormality detection module, referring to the section “Removal of [PR] Voltage Abnormality Detection

Module".

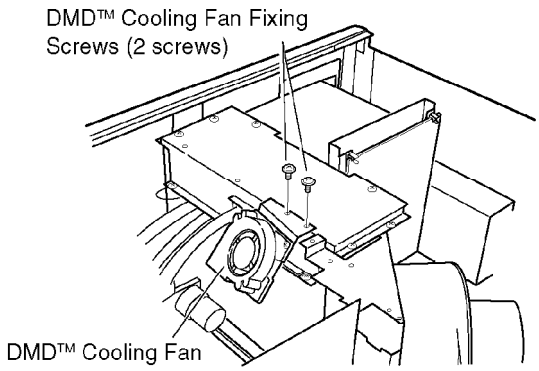
3. **Remove the [BF] digital bus buffer module from the [MA] mother board A.**
   *** The peripheral components are not shown in Fig. 8 so that the main components in this section can be seen easily.**

Fig. 8



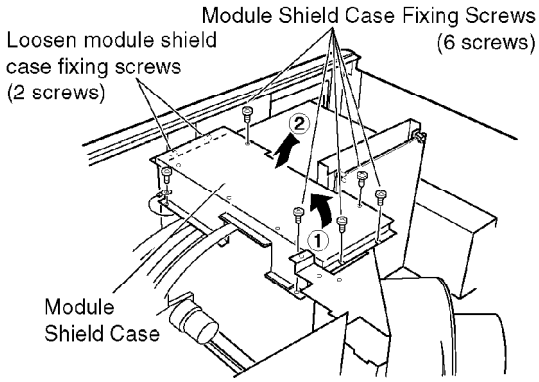
10.11. Removal of [AD] A/D Converter Module, [GT] RGB Resizing Module, and [FM] DMD Driver Module

1. **Remove the top-front cabinet, referring to the section "Removal of Top-front Cabinet".**
2. **Remove the DMD™ cooling fan, unscrewing the two screws fixing it.**

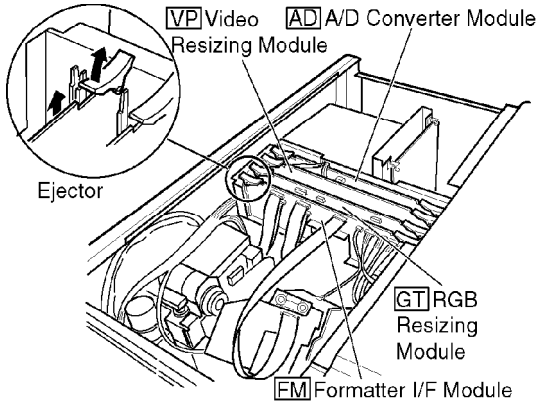


3. **Remove the module shield case, loosen the two screws of front side and unscrewing the six screws fixing it.**
   *** The unscrewed screws are shown in Fig. 9 so that the positions of the fixing screws can be seen easily.**

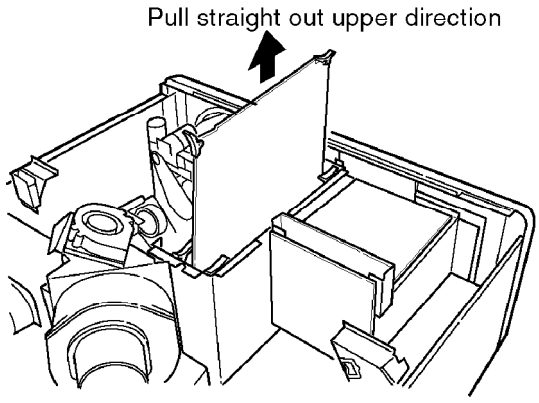
Fig. 9



4. Release the modules by the ejectors on both sides of each module.



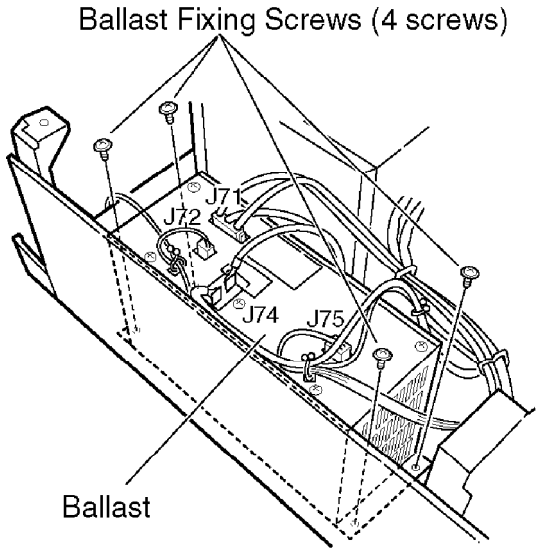
5. Pull straight out the module to be replaced upward.
*** When removing the [AD] A/D converter module, disconnect the three coaxial cables and one connector before the work.**
*** When removing the [FM] Formatter I/F module, disconnect the five flat cables and four connector before the work.**



10.12. Removal of Ballast

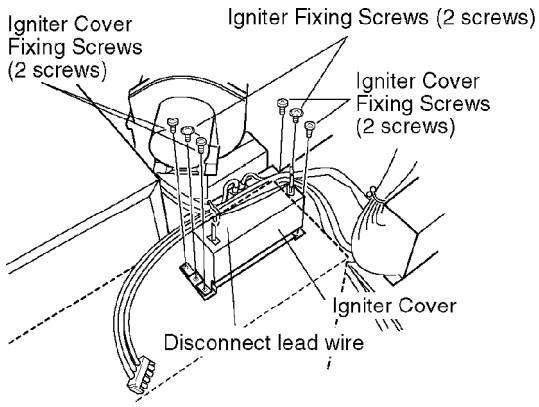
1. Remove the top-front cabinet, referring to the section “Removal of Top-front Cabinet”.

2. **Remove the top-rear cabinet, referring to the section “Removal of Top-rear Cabinet”.**
3. **Disconnect connectors (J71, J72, J75) of ballast.**
4. **Disconnect lead wires J74 (+) and J74 (-).**
5. **Remove the ballast, unscrewing ballast fixing screws (4 screws).**

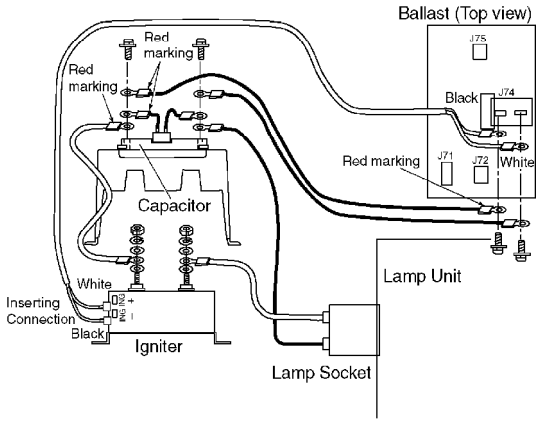


10.13. Removal of Igniter

1. **Remove the Top-front cabinet, referring to the section “Removal of Top-front Cabinet”.**
2. **Remove the Top-rear cabinet, referring to the section “Removal of Top-rear Cabinet”.**
3. **Remove lead wire from clamper of igniter cover.**
4. **Remove the Igniter Cover, unscrewing the four screws fixing it.**
5. **Remove the Igniter, unscrewing the two screws fixing it.**



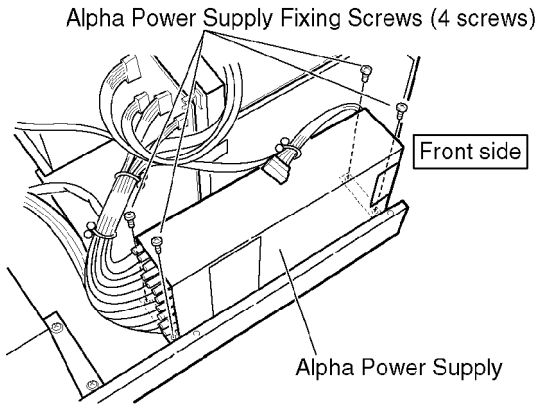
Note:
When connecting the cables to the igniter (or ballast), refer to the illustration below and be sure to tighten the nuts and bolts.



10.14. Removal of Alpha Power Supply

1. **Remove the top-front cabinet, referring to the section “Removal of Top-front Cabinet”.**
2. **Remove the top-rear cabinet, referring to the section “Removal of Top-rear Cabinet”.**
3. **Remove four screws of the alpha power supply fixing screws.**
4. **Take the alpha power supply out upside and disconnect connectors of alpha power supply.**

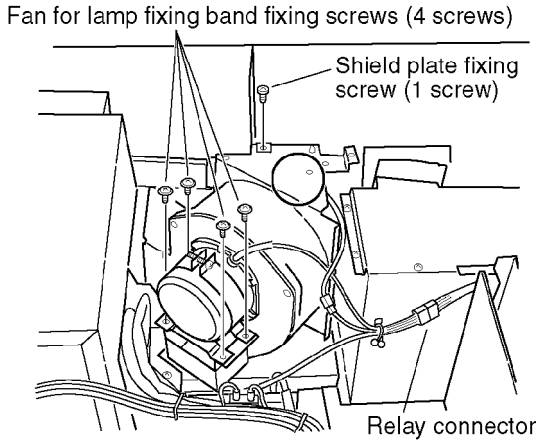
Note:
The figure shows the side cover removed.
However, the alpha power supply can be removed without removing the side cover.



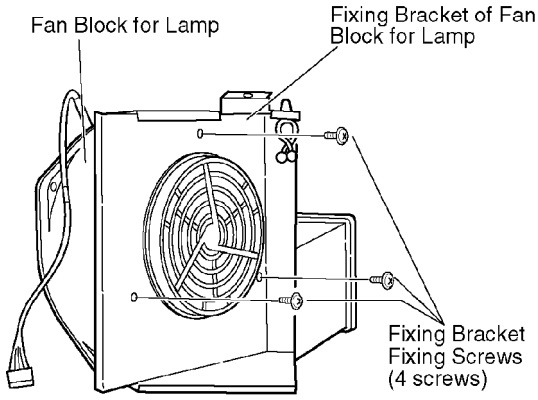
10.15. Removal of Fan Block for Lamp

1. **Remove the top-front cabinet, referring to the section “Removal of Top-front Cabinet”.**
2. **Remove the top-rear cabinet, referring to the section “Removal of Top-rear Cabinet”.**
3. **Disconnect the fan motor relay connector (F8).**
4. **Remove the fan block for lamp, unscrewing the four screws fan fixing band for lamp fixing screws and a screw shield plate fixing screw.**

Note:
Remove the lead wires from clamper where is in back side of circle is shown in Figure (upper right).



5. **Remove the fan block for lamp, unscrewing the three screws fan block for lamp fixing screws.**



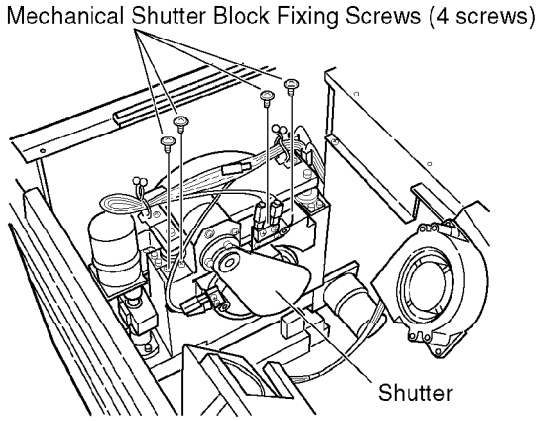
10.16. Removal of Mechanical Shutter Block

1. **Remove the top-front cabinet, referring to the section “Removal**

of Top-front Cabinet".

2. Disconnect the connector of shutter position switch (2 places) and relay connector for mechanical shutter motor.
3. Remove the mechanical shutter block, unscrewing the four screws fixing it.

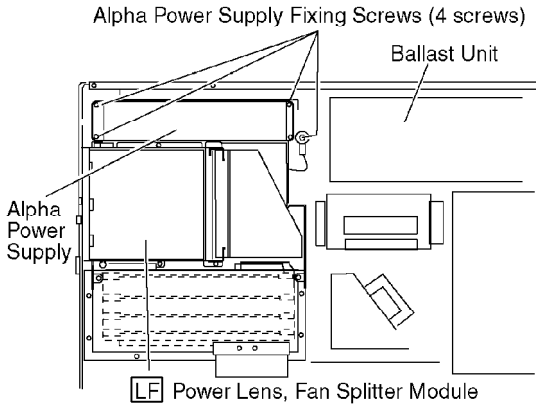
Note:
For reason of clarity, the figure shows the optical block removed.



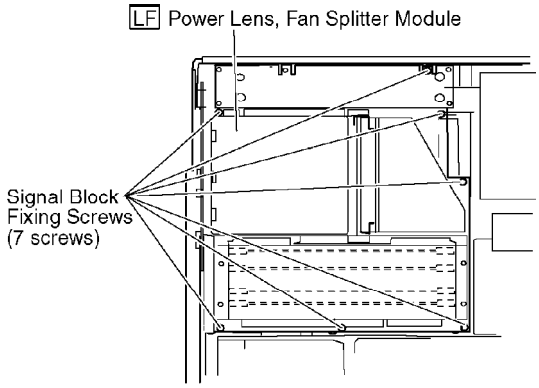
10.17. Removal of [KA] Power Line Filter Module and [CN] Standby Power Supply Module

1. Remove the top-front cabinet, referring to the section "Removal of Top-front Cabinet".
2. Remove the top-rear cabinet, referring to the power section "Removal of Top-rear Cabinet".
3. Remove the alpha power supply, unscrewing the four screws fixing it.

Note:
After fitting, do not forget to insert the grounding plugs of the alpha power supply and signal block.

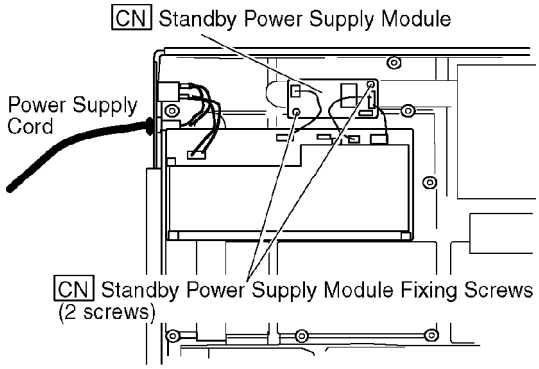


4. **Remove the signal block (mother block), unscrewing the seven screws fixing it.**



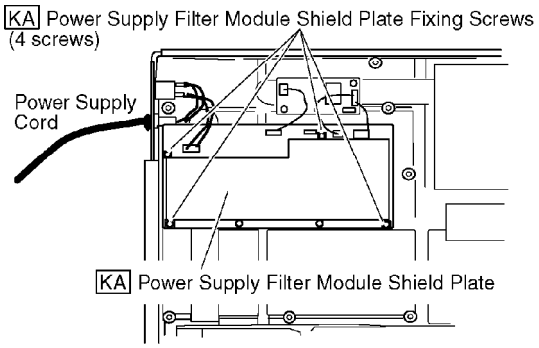
10.17.1. Removal of [CN] Standby Power Supply Module

1. **Disconnect the connectors (CN1, CN2) of [CN] standby supply module.**
2. **Remove the standby power supply module, unscrewing the two screws fixing it.**

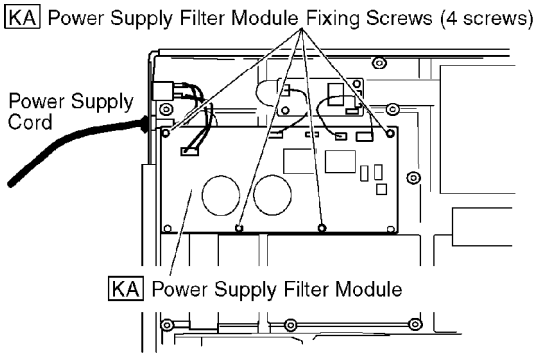


10.17.2. Removal of [KA] Power Supply Filter Module

1. **Remove the shield plate of the power supply filter, unscrewing the four screws fixing it.**

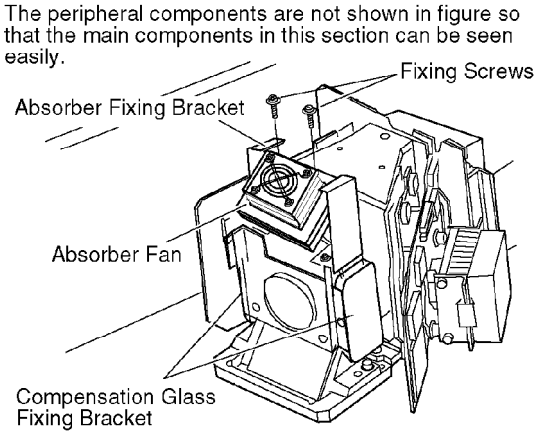


2. **Disconnect the connectors (KA1, KA2, KA3, KA4, KA6, KA7, KA8, KA9, KA10) of the power supply filter module.**
3. **Remove the power supply filter module, unscrewing the four screws fixing it.**

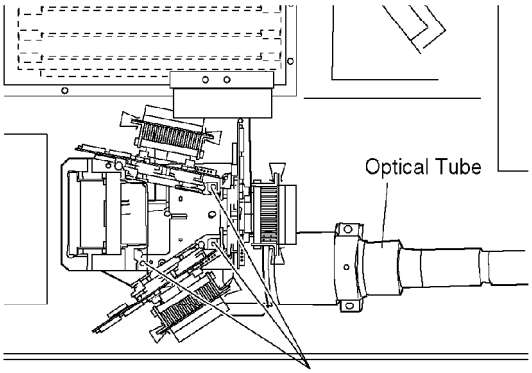


10.18. Removal of DMD Assembly

1. **Remove the fan for absorber, unscrewing the two screws fixing it.**
2. **Remove the compensation glass fixing bracket, bracket for absorber and rubber for vibration proof.**



3. **Remove the DMD™ assembly block, unscrewing three screws fixing it.**

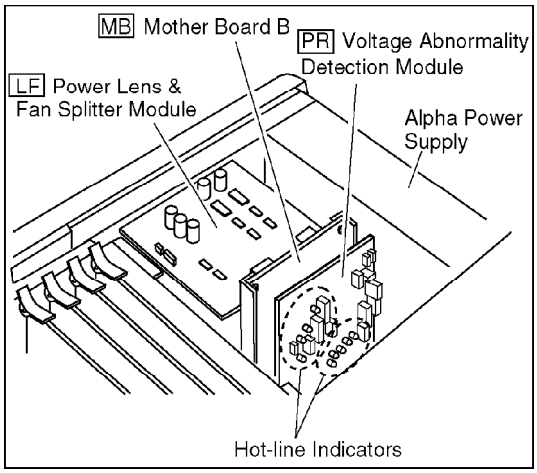


11. Troubleshooting

11.1. Note for [CM] Module Replacement

Checking Procedure
To check this projector, the self-check function can be used.
This chapter describes the excluded items from the self-check function.

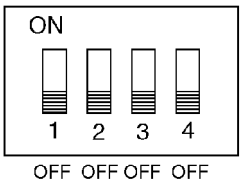
Checking Procedure of Power Voltages
Some modules have hot-line indicators to check whether each power voltage is supplied or not. The voltages to be supplied are printed on their boards and these indicators show the conditions of the power lines.
The illustration at right shows the positions of the hot-line indicators on the [PR] voltage abnormality detection module.



11.2. DIP Switches

The [CM] CPU module have the DIP switches. When replacing these modules with new ones, check that the DIP switch settings of the new modules are as shown below (factory default settings).

CM CPU Module



11.3. Troubuleshooting

Perform the services of this projector, referring to the troubleshooting charts below and self-check function.
The letters such as KA and PR at the left of each box show the modules related to the respective items.

(a) The main power supply is not turned on. (The power indicator does not light up in red.)
----------Check that the requirements to turn on the main power are satisfied.

	Can the main power switch be turned on ?	OK	Replace the CN standby power supply module. The +5V standby power supply is used for the power indicator.
	After disconnecting the AC power connector of the alpha power supply (stopping the operation of the alpha power supply), can the main power switch be turned on ?	OK	Replace the alpha power supply.
	After disconnecting the AC power cables of the ballast unit (stopping the operation of the ballast unit), can the main power switch be turned on ?	OK	Replace the ballast unit or the igniter.
KA	Replace the KA power line filter module.		

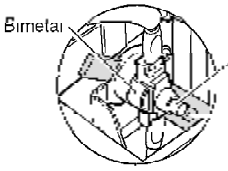
NG

When replacing the KA power line filter module, the replacement of the CN standby power supply module may be required.

(b) The power supply is not turned on. (The projector does not change from the standby mode to the main power mode.) (The power indicator does not change from red to green.)

	Is the top-rear cabinet, duct, or both removed? (Does a shutdown occur?)	NG	Install the top-rear cabinet, duct, or both.
	Are the terminals of the bimetal short-circuited? The short-circuited condition is normal. (Is the protrusion of the bimetal under the pressed condition?)	NG	Press the protrusion until you hear it click.
CP	Can pressing the POWER button on the projector operating panel turn on the power?	OK	Replace the SC remote control photoreceptor module or check the remote control signal path.
	Is the connector on the CP control panel relay module connected?	NG	Connect the connector.
CM	Replace the CM CPU module		

OK



The fluctuating of the bimetal protrudes the protrusion.

(c) Common checking items of the power supply circuit ----- If trouble occurs in the power supply circuit, check the hot-line indicators on the [PR] module and other some modules to narrow down failed module(s) or part(s).

PR | Are all the hot-line indicators for the [PR] alpha power supply lighting up? (Refer to Fig. 1.) — NG → Replace the alpha power supply.

OK

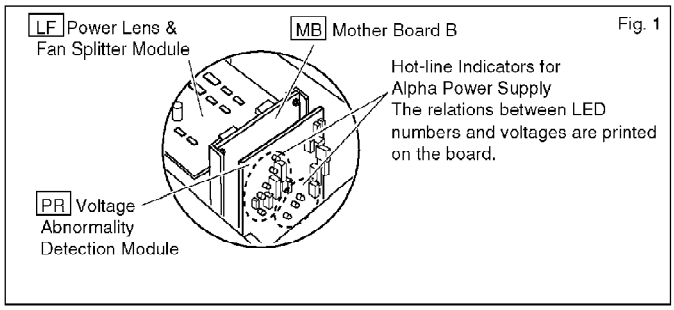


Fig. 1

Are all the hot-line indicators on the modules lighting up? (The relations between LED numbers and voltages are printed on the board.) — NG → Replace the failed module(s).

OK

The power supply circuit operates correctly.

The [LF] power lens & fan splitter module has no hot-line indicator.

(d) The projector shuts down.

The projector shuts down about 10 minutes after the power is turned on. — OK → If the message "WARNING REPLACE THE LAMP" is displayed at the lower right of the screen, the time has come to replace the lamp. → Replace the lamp unit.

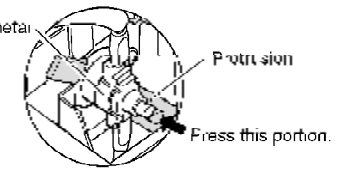
NG

Did the projector shut down during the operation?

OK

After the projector cools, can the power be turned on again? — NG → Are the terminals of the bimetal short-circuited? The short-circuited condition is normal. (Is the protrusion of the bimetal under the pressed condition?) → Press the protrusion until you hear it click.

OK



- If the temperature of the lamp unit is elevated abnormally, the bimetal will function.
- Check that the ventilating opening of the duct is not blocked.
- Check the ambient temperature.

To the next page

From the previous page

If the code "CE" appears on the self-diagnosis display, a Peltier device or fan is at fault. **OK** → Replace the DMD™ assembly.

When the code "CE" appears, check that the ambient temperature of the projector is within its specification for this model.

If the code "FE" appears on the self-diagnosis display, a fan motor stops.

• Table of Fan Voltage (Table 1)

Name (Purpose)	Connector	Terminal No.	Voltage
Peltier Fan	LF9	1	+24V
		2	GND
		4	+24V
		7	+24V
Absorber Fan	LF12	1	+24V
		2	GND
Prism Fan		4	+24V
Circuit Fan	LF13	1	+24V
		2	GND
Lamp Fan	LF16	1	+24V
		3	GND
Duct Fan	LF18	1	+24V
		2	GND

Check the fan voltages.
PR voltage abonormality detection module, Are D9917 (24V) and D9918 (12V) lighting up?

OK → Are the voltages of the LF power lens & the fan terminals correct? (Refer to Table 1.)

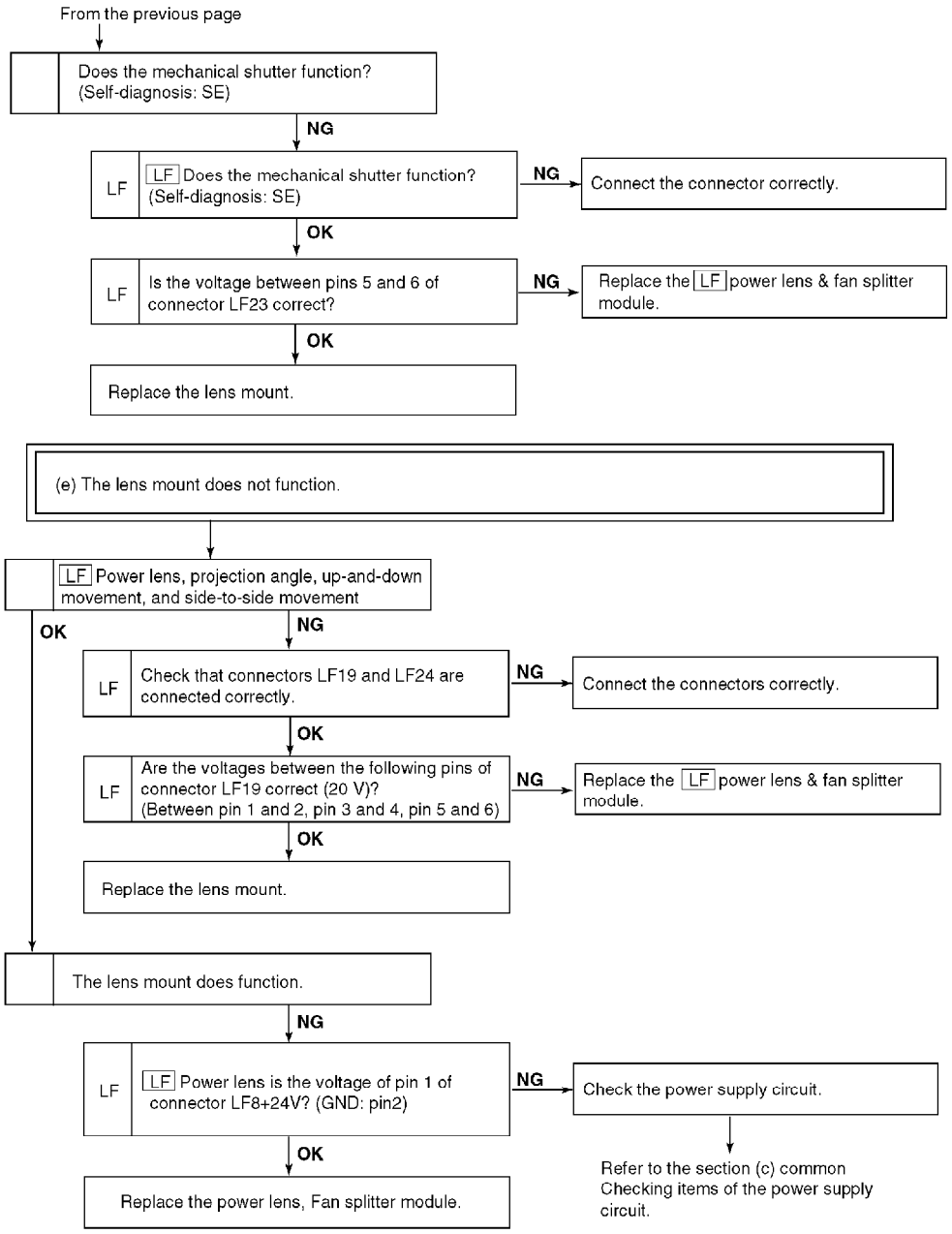
OK → Is D9917 (24V) lighting up?

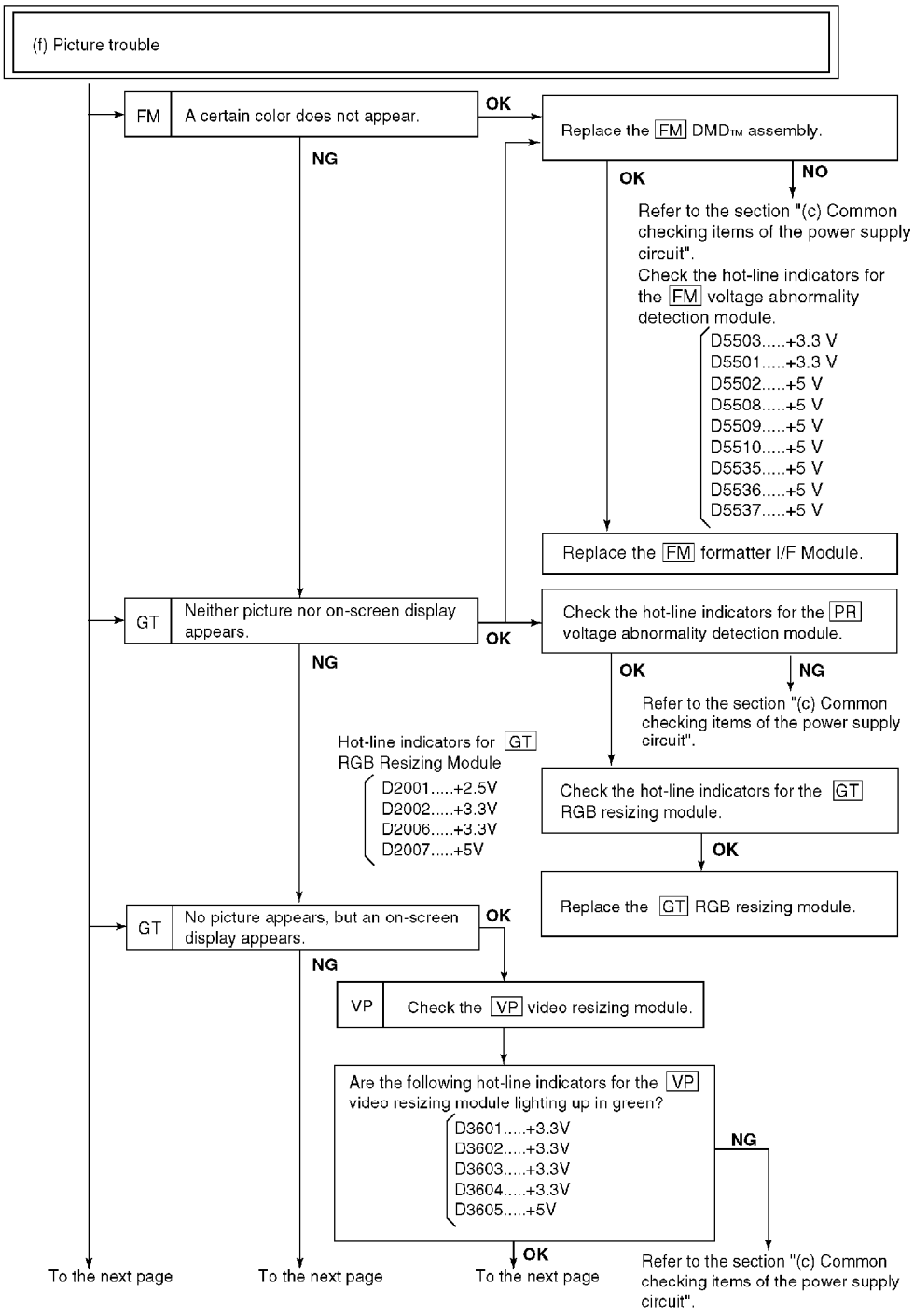
NG → Replace the LF power lens & fan splitter module.

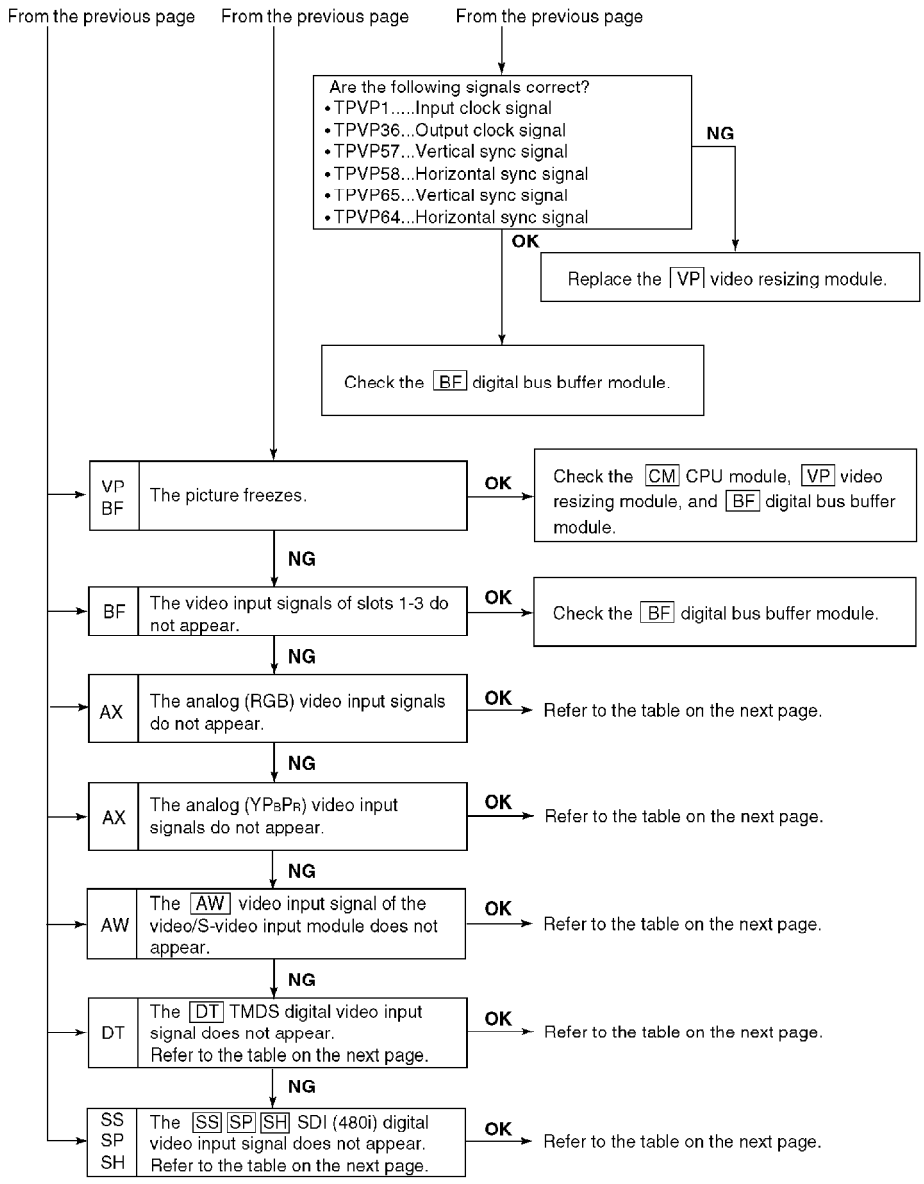
NG → Replace the alpha power supply.

NG → Replace the fan motor.

To the next page


From the previous page
Does the mechanical shutter function? (Self-diagnosis: SE)
NG
LF
LF Does the mechanical shutter function? (Self-diagnosis: SE)
NG
Connect the connector correctly.
OK
LF
Is the voltage between pins 5 and 6 of connector LF23 correct?
NG
Replace the LF power lens & fan splitter module.
OK
Replace the lens mount.
(e) The lens mount does not function.
LF Power lens, projection angle, up-and-down movement, and side-to-side movement
OK
NG
LF
Check that connectors LF19 and LF24 are connected correctly.
NG
Connect the connectors correctly.
OK
LF
Are the voltages between the following pins of connector LF19 correct (20 V)? (Between pin 1 and 2, pin 3 and 4, pin 5 and 6)
NG
Replace the LF power lens & fan splitter module.
OK
Replace the lens mount.
The lens mount does function.
NG
LF
LF Power lens is the voltage of pin 1 of connector LF8+24V? (GND: pin2)
NG
Check the power supply circuit.
OK
Replace the power lens, Fan splitter module.
Refer to the section (c) common Checking items of the power supply circuit.


(f) Picture trouble
FM
A certain color does not appear.
OK
NG
Replace the FM DMD™ assembly.
OK
NO
Refer to the section "(c) Common checking items of the power supply circuit".
Check the hot-line indicators for the FM voltage abnormality detection module.
D5503.....+3.3 V
D5501.....+3.3 V
D5502.....+5 V
D5508.....+5 V
D5509.....+5 V
D5510.....+5 V
D5535.....+5 V
D5536.....+5 V
D5537.....+5 V
Replace the FM formatter I/F Module.
GT
Neither picture nor on-screen display appears.
OK
NG
Check the hot-line indicators for the PR voltage abnormality detection module.
OK
NG
Refer to the section "(c) Common checking items of the power supply circuit".
Hot-line indicators for GT RGB Resizing Module
D2001.....+2.5V
D2002.....+3.3V
D2006.....+3.3V
D2007.....+5V
Check the hot-line indicators for the GT RGB resizing module.
OK
Replace the GT RGB resizing module.
GT
No picture appears, but an on-screen display appears.
OK
NG
VP
Check the VP video resizing module.
Are the following hot-line indicators for the VP video resizing module lighting up in green?
D3601.....+3.3V
D3602.....+3.3V
D3603.....+3.3V
D3604.....+3.3V
D3605.....+5V
NG
OK
To the next page
To the next page
To the next page
Refer to the section "(c) Common checking items of the power supply circuit".



11.4. Failed modules narrowde down by the relation between input signal and problem (Possibility:high●,middle○,low△)

Problems	Checking Items \ Module	AX	AW	DT	SS SP SH	MB	MA	BF	AD	VP	GT	FM
The AX (RGB) input signals do not appear.	The AX (YP_BP_R) input signals appear.						○				●	
	The AW or SS SP SH input signal appears.	●					△		●		○	
	The DT input signal appears.	●				●			●			
	The test patterns appear.	●				●	●		●		△	
	The MENU display does not appear either.						●				●	●
The AX (YP_BP_R) input signals do not appear.	The AX (RGB) input signals appear.						△			●	△	
	The AW or SS SP SH input signal appears.	●				●			●			
	The DT input signal appears.	●				●			●		△	
	The test patterns appear.	●				●	●		●	●	△	
	The MENU display does not appear either.						●				●	●
The AW input signal does not appear.	The AX (YP_BP_R) input signals appear.		●			△	△	●				
	The AX (RGB) input signals appear.		●			○	○	●		●	○	
	The DT input signal appears.		●				△			●	○	
	The test patterns appear.		●			●	●	●		●	○	
	The MENU display does not appear either.						●				●	●
The DT input signal does not appear.	The AX (RGB) input signals appear.			●		●	○	●				
	The AX (YP_BP_R) input signals appear.			●		●	○	●			○	
	The AW or SS SP SH input signal appears.			●			△				○	
	The test patterns appear.			●		●	●	●		●	○	
	The MENU display does not appear either.						●				●	●
The SS SP SH input signal does not appear.	The AX (RGB) input signals appear.				●	●	○	●		●	△	
	The AX (YP_BP_R) input signals appear.				●	●	○	●			○	
	The AW input signal appears.				●							
	The DT input signal appears.				●		△			●	○	
	The test patterns appear.				●	●	●	●		●	○	
	The MENU display does not appear either.						●				●	●

Note:

1. The following signals can be used instead of the AX (YP_BP_R) input signals.
   - Input a video signal to [G].
   - Input the VGA (31.5kHz / 60Hz) signal and set SYSTEM SELECTOR to the YP_BP_R mode.
2. When the MENU display does not appear either, check that ON-SCREEN is not set to OFF.
3. When applying the AW input signal, check that the selection of LINE/YC is correct.

12. Using RS-232C Connectors

Because this projector has the RS-232C input connector (D-Sub 9P) and the RS-232C output connector (D-Sub 9P) to externally control the projector according to the RS-232C specifications, using a personal computer allows thecontrol of this projector.

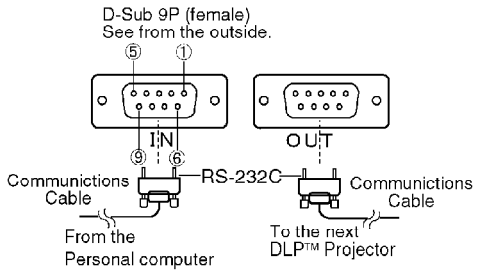
12.1. Pin Configuration and Signal Names of RS-232C Connectors

RS-232C IN

Pin No.	Names	Functions
1	TRI	Unassigned
2	RD	Data transmission
3	SD	Data reception
4	NC	NC
5	FG	GND
6	TRO	Unassigned
7	RS	Demand for transmission
8	CS	Acceptance of transmission
9	NC	NC

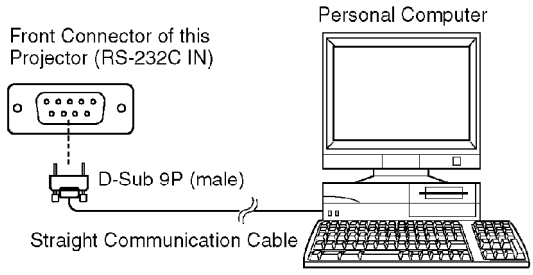
RS-232C OUT

Pin No.	Names	Functions
1	TRO	Unassigned
2	RD	Data reception
3	SD	Data transmission
4	NC	NC
5	FG	GND
6	TRI	Unassigned
7	CS	Acceptance of transmission
8	RS	Demand for transmission
9	NC	NC



12.2. Settings of RS-232C

Set the communications parameters below according to a computer to be connected. To connect the computer, use a straight cable and connect it to the RS-232C input connector.



[Communications parameters]

- Baud rate (bps): 1 200/2 400/4 800/9 600/19 200/38 400/76 800/102 400/122 800/153 600/204 800/307 200

- Parity: ODD/EVEN/NONE

- VPS system: MASTER/SLAVE

- Start & stop bits: 1 bit (fixed)

- Character length: 8 bit (fixed)

- X parameter / S parameter: None

- Synchronization: Start-Stop asynchronous

- GROUP: A-Z/- (no GROUP specification)

MASTER/SLAVE

MASTER: Transfers (returns) the command corresponding to the group.

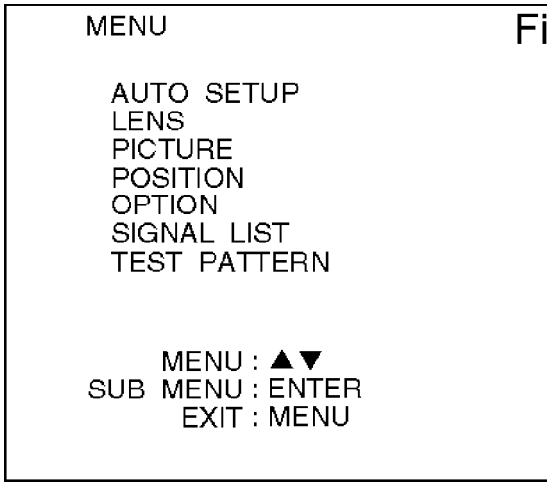
SLAVE: Does not transfers (return) the command corresponding to the group.

Setting Procedure

(1) Press the MENU button.

-The MENU screen will be displayed as shown in Fig. 1 at right.

(2) Select OPTION, using the UP (▲) and DOWN (▼) arrow buttons.



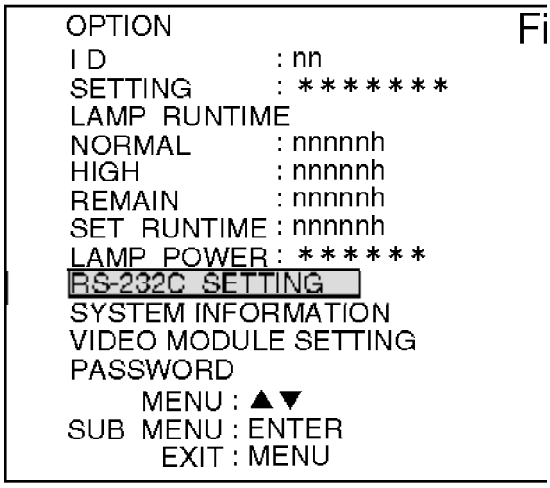
(3) Press the ENTER button.

-The OPTION screen will be displayed as shown in Fig. 2 at right.

(4) Select RS-232C SETTING, using the UP (▲) and DOWN (▼) arrow buttons.

(5) Press the ENTER button.

-The RS-232C SETTING screen will be displayed as shown in Fig. 3 at right.



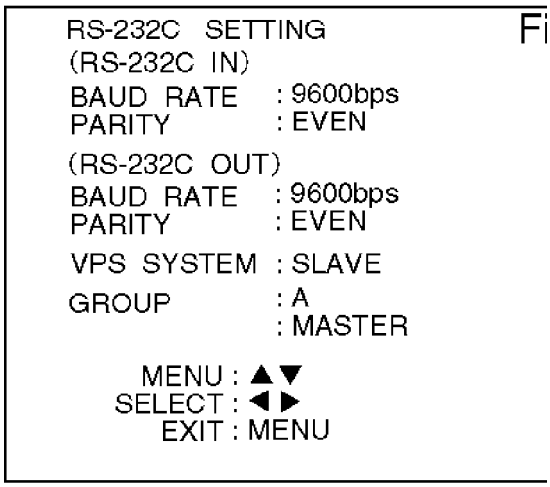
(6) Select a communications parameter, using the UP (▲) and DOWN (▼) arrow buttons.

(7) Set the communications parameter, using the LEFT (◀) and RIGHT (▶) arrow buttons.

-If using two or more projectors, set VPS SYSTEM of the master projector to MASTER and the slave projector(s) to SLAVE.

(8) Press the MENU button three times.

-The on-screen display will disappear and the screen will return to the normal state.



12.3. Basic Control Commands

Codes	Names Target Remote Control Key	Functions (toggle operation)
06	RGB	INPUT RGB
0A	INPUT1	※1 INPUT1
0B	INPUT2	※1 INPUT2
0C	INPUT3	※1 INPUT3
0F	NEXT	NEXT
10	1	※2 SS ?- 1 Selection or Remote control ID setting
11	2	※2 SS ?- 2 Selection or Remote control ID setting
12	3	※2 SS ?- 3 Selection or Remote control ID setting
13	4	※2 SS ?- 4 Selection or Remote control ID setting
14	5	※2 SS ?- 5 Selection or Remote control ID setting
15	6	※2 SS ?- 6 Selection or Remote control ID setting
16	7	※2 SS ?- 7 Selection or Remote control ID setting
17	8	※2 SS ?- 8 Selection or Remote control ID setting
18	9	※2 SS ?- 9 Selection or Remote control ID setting
19	0	※2 SS ?- 10 Selection or Remote control ID setting
35	BRIGHT	BRIGHT
36	CONTRAST	CONTRAST
3B	STD	STD
3D	POWER	POWER
3E	POWER ON	POWER ON
3F	POWER OFF	POWER OFF
40	TEST	TEST PATTERN
58	＋	
59	－	
5A	▲	
5B	▼	
5C	◀	
5D	▶	
62	ON SCREEN	On-screen ON/OFF
6D	INPUT	
70	SYSTEM SELECTOR	
72	ENTER	
7A	MENU	
7C	LENS	
91	PICTURE MUTE	

※1: The case of VIDEO/S-VIDEO input board is LINE/Y/C.
※2: SS stands for Signal Selector.

I D List

ID No.	Code specified	ID No.	Code specified	ID No.	Code specified	ID No.	Code specified	ID No.	Code specified	ID No.	Code specified
ALL	00h	17	11h	34	22h	51	33h	Group A	80h	Group R	91h
1	01h	18	12h	35	23h	52	34h	Group B	81h	Group S	92h
2	02h	19	13h	36	24h	53	35h	Group C	82h	Group T	93h
3	03h	20	14h	37	25h	54	36h	Group D	83h	Group U	94h
4	04h	21	15h	38	26h	55	37h	Group E	84h	Group V	95h
5	05h	22	16h	39	27h	56	38h	Group F	85h	Group W	96h
6	06h	23	17h	40	28h	57	39h	Group G	86h	Group X	97h
7	07h	24	18h	41	29h	58	3Ah	Group H	87h	Group Y	98h
8	08h	25	19h	42	2Ah	59	3Bh	Group I	88h	Group Z	99h
9	09h	26	1Ah	43	2Bh	60	3Ch	Group J	89h		
10	0Ah	27	1Bh	44	2Ch	61	3Dh	Group K	8Ah		
11	0Bh	28	1Ch	45	2Dh	62	3Eh	Group L	8Bh		
12	0Ch	29	1Dh	46	2Eh	63	3Fh	Group M	8Ch		
13	0Dh	30	1Eh	47	2Fh	64	40h	Group N	8Dh		
14	0Eh	31	1Fh	48	30h			Group O	8Eh		
15	0Fh	32	20h	49	31h			Group P	8Fh		
16	10h	33	21h	50	32h			Group Q	90h		

Reception: [STX (02h)] [ID NO] [Each command (1-3BYTE)] [ETX (03h)]
Reply: [STX (02h)] [ID NO] [Each command (1-3BYTE)] [ETX (03h)]

12.4. Direct Control Commands (A1h)

Reception: [STX] [ID NO] [A1h] [Each command] [Parameter or DATA] [ETX]
Reply: [STX] [ID NO] [A3h] [Each command] [Parameter or DATA] [ETX]

1. RGB [CODE 06h]

RGB Input Selection
Reception (PC → DLP): [STX] [ID NO] [A1h] [06h] [Parameter] [ETX]
Reply (PC ← DLP): [STX] [ID NO] [A3h] [* *h] [Parameter] [ETX]

Parameter CODE
00h Inquiry about the input selection status
01h RGB input selection

***1 For the parameter 00h, the present input status will be transmitted.**

Example: during RGB input selection
Reception (PC → DLP): [STX] [ID NO] [A1h] [06h] [00h] [ETX]
Reply (PC ← DLP): [STX] [ID NO] [A3h] [06h] [01h] [ETX]

2. INPUT1 [CODE 0Ah]

SLOT1 Selection
Reception (PC → DLP): [STX] [ID NO] [A1h] [0Ah] [Parameter] [ETX]
Reply (PC ← DLP): [STX] [ID NO] [A3h] [* *h] [Parameter] [ETX]

Parameter CODE
00h Inquiry about the input selection status
01h SLOT1 selection (The case of VIDEO / S-VIDEO input board is LINE.)
02h SLOT1 selection (The case of VIDEO / S-VIDEO input board is Y/C.)
FFh SLOT equipped with no board

3. INPUT2 [CODE 0Bh]

SLOT2 Selection
Reception (PC → DLP): [STX] [ID NO] [A1h] [0Bh] [Parameter] [ETX]
Reply (PC ← DLP): [STX] [ID NO] [A3h] [* *h] [Parameter] [ETX]

Parameter CODE
00h Inquiry about the input selection status
01h SLOT2 selection (The case of VIDEO / S-VIDEO input board is LINE.)
02h SLOT2 selection (The case of VIDEO / S-VIDEO input board is Y/C.)
FFh SLOT equipped with no board

4. INPUT3 [CODE 0Ch]

SLOT3 Selection
Reception (PC → DLP): [STX] [ID NO] [A1h] [0Ch] [Parameter] [ETX]
Reply (PC ← DLP): [STX] [ID NO] [A3h] [* *h] [Parameter] [ETX]

Parameter CODE
00h Inquiry about the input selection status
01h SLOT3 selection (The case of VIDEO / S-VIDEO input board is LINE.)
02h SLOT3 selection (The case of VIDEO / S-VIDEO input board is Y/C.)
FFh SLOT equipped with no board

5. TEST [CODE 40h]

Test Pattern Selection and Switching
Reception (PC → DLP): [STX] [ID NO] [A1h] [40h] [Parameter] [ETX]
Reply (PC ← DLP): [STX] [ID NO] [A3h] [40h] [Parameter] [ETX]

Parameter CODE
00h Inquiry about the test pattern status
01h OFF
02h ALL WHITE
03h ALL BLACK
04h H GRAY SCALE
05h H GRAY SCALE (reversal)
06h V GRAY SCALE
07h V GRAY SCALE (reversal)
08h HATCH
09h HATCH (reversal)
0ah DOT
0bh DOT (reversal)
0ch COLOR BAR
0dh WINDOW
0eh WINDOW (reversal)

0fh FLAG
10h FLAG (reversal)
11h CONVERGENCE
12h FOCUS

6. COLOR TEMP [CODE 68h]

Color Temperature Switching
Reception (PC → DLP): [STX] [ID NO] [A1h] [68h] [Parameter] [ETX]
Reply (PC ← DLP): [STX] [ID NO] [A3h] [68h] [Parameter] [ETX]

Parameter CODE
00h Inquiry about the color temperature status
01h COLOR TEMP LOW
02h COLOR TEMP MID
03h COLOR TEMP HIGH
04h COLOR TEMP USER
05h COLOR TEMP DYNAMIC

7. POWER [CODE 3Dh]

Power ON/OFF
Reception (PC → DLP): [STX] [ID NO] [A1h] [3Dh] [Parameter] [ETX]
Reply (PC ← DLP): [STX] [ID NO] [A3h] [3Dh] [Parameter] [ETX]

Parameter CODE
00h Inquiry about the power-on/off status
01h POWER ON
02h POWER OFF

8. SS SELECT [CODE 8Fh]

Selection of Signal Selector (option)
Reception: [STX] [ID NO] [A1h] [8Fh] [Parameter] [ETX]
Reply: [STX] [ID NO] [A3h] [8Fh] [Parameter] [ETX]

Parameter Explanation

MSB							LSB	Contents
7	6	5	4	3	2	1	0	
0	0	*	*	*	*	*	*	Not optioned
0	1	*	*	*	*	*	*	RGB
1	0	*	*	*	*	*	*	LINE ※1
1	1	*	*	*	*	*	*	Y/C ※1
*	*	0	0	*	*	*	*	The 1st SS
*	*	0	1	*	*	*	*	The 2nd SS
*	*	1	0	*	*	*	*	The 3rd SS
*	*	1	1	*	*	*	*	The 4th SS
*	*	*	*	0	0	0	0	Channel 1
*	*	*	*	0	0	0	1	Channel 2
*	*	*	*	0	0	1	0	Channel 3
*	*	*	*	0	0	1	1	Channel 4
*	*	*	*	0	1	0	0	Channel 5
*	*	*	*	0	1	0	1	Channel 6
*	*	*	*	0	1	1	0	Channel 7
*	*	*	*	0	1	1	1	Channel 8
*	*	*	*	1	0	0	0	Channel 9
*	*	*	*	1	0	0	1	Channel 10

※1 : When two or more boards are installed, the slot of a lower number will be selected.

Example: The RGB input of channel 3 of the first signal selector is selected.
Reception: [STX] [ID NO] [A1h] [8Fh] [42fh] [ETX]
Reply: [STX] [ID NO] [A3h] [8Fh] [42fh] [ETX]

Command for a status inquiry [CODE A2h]
Reception (PC → DLP): [STX] [ID NO] [A2h] [Each command] [Parameter] [ETX]
Reply (PC ← DLP): [STX] [ID NO] [A3h] [Each command] [Parameter or DATA] [ETX]

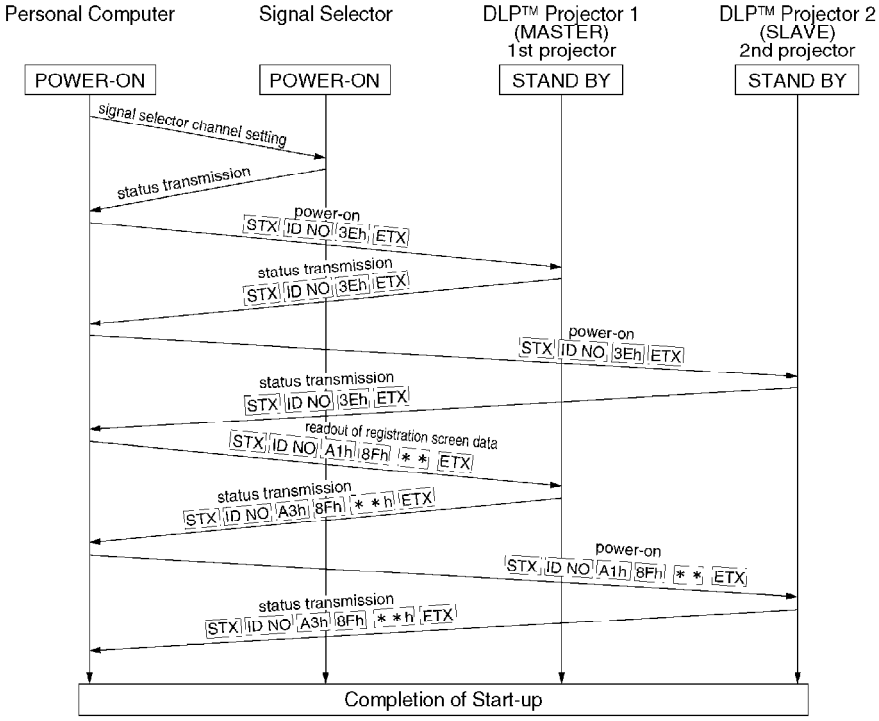
1. RGB [CODE 06h]
2. INPUT1 [CODE 0Ah]
3. INPUT2 [CODE 0Bh]
4. INPUT3 [CODE 0Ch]
5. TEST [CODE 40h]
6. COLOR TEMP [CODE 68h]
7. POWER [CODE 3Dh]
8. SS SELECT [CODE 8Fh]

MODEL NO. [CODE 85h]

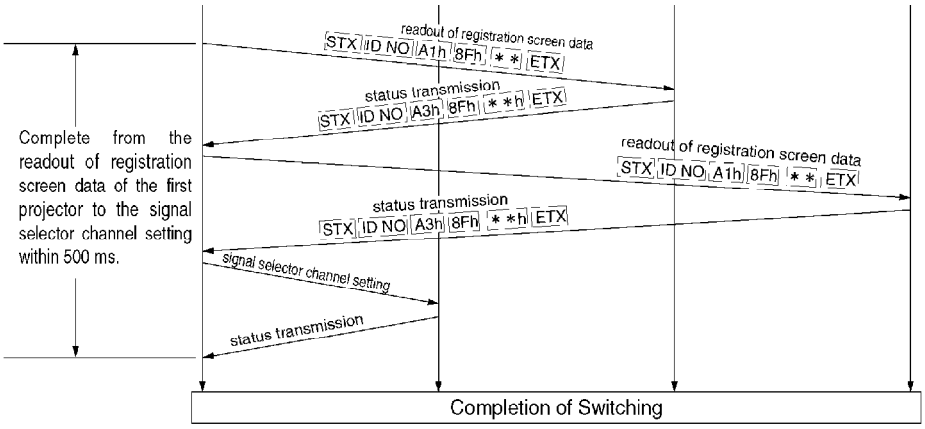
Model Number Retrieval
Reception (PC → DLP): [STX] [ID NO] [85h] [ETX]
Reply (PC ← DLP): [STX] [ID NO] [85h] [41h] [20h] [ETX]

12.5. Communications Sequence of Signal Selector

12.5.1. Power-on Sequence



12.5.2. Input Signal Switching Sequence



: For the portion marked with " *" in the readout command of registration screen data, refer to SS SELECT (8Fh) in the section "Direct Control Command (A1h)" .

12.6. RS-232C MASTER / SLAVE Connections

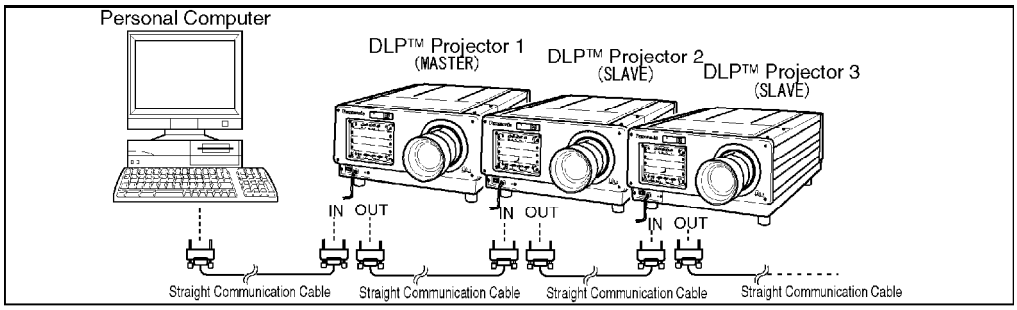
When establishing the cascade connection of RS-232C, set one PT-D8500U/E to VPS SYSTEM: MASTER and other PT-D8500U/Es to VPS SYSTEM: SLAVE. The connection examples are shown below.

1. Connection with a personal computer

*** Use straight cables for all the connections among elements.**

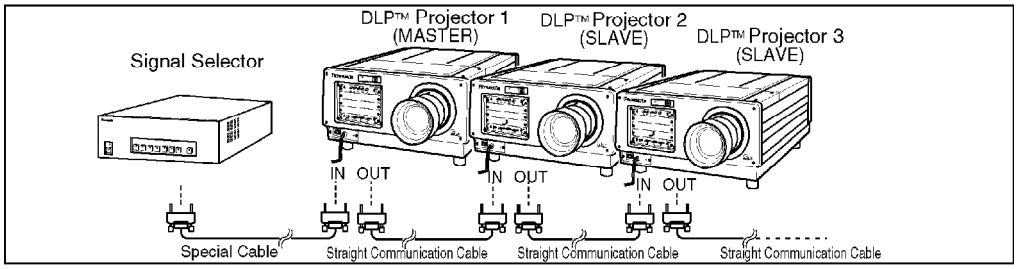
- For commands with ID ALL, the master projector will reply to the personal computer.

- For commands with an ID, a slave projector with its ID will reply.

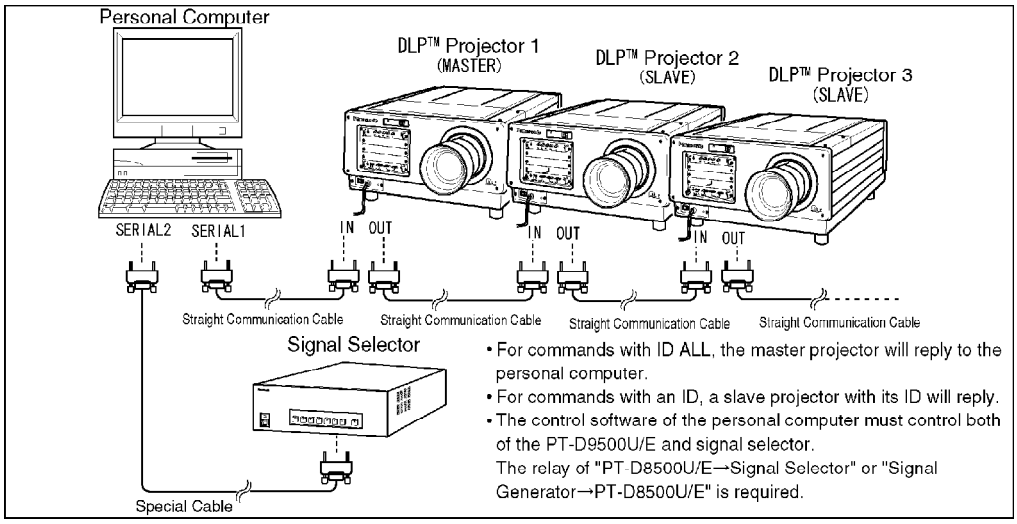


2. Connection with a signal selector

- For the switching commands, the master projector will reply to the personal computer.



3. Connection with both of a personal computer and signal selector
*** Use straight cables for all the connections among elements, but use a special cable between the personal computer and signal selector.**



13. Adjustment

Perform the following adjustments when changing the optical tube.

13.1. Adjusting the optical tube mirror.

(This adjustment is necessary if the lighting area positioning is altered by replacement of the optical tube.)

Step1

As shown in Fig. 1, use a hexagonal wrench to slightly turn the three adjuster screws of the optical tube mirror. Fine adjustments should be made so that the position of the lighting area lines up with the screen.

Step2

The direction of movement of the lighting area on the screen is shown by the arrows in Fig. 2.

- Turning screw 1 to the right moves the lighting area to the upper left of the screen.
- Turning screw 2 to the right moves the lighting area to the lower left of the acreen.
- Turning screw 3 to the right moves the lighting area to the upper right of the screen.
- Normally only screws 1 and 2 need to be used for adjustment. If adjustments cannot be made with just these two, then adjust using screw 3 also.

(If all three screws are used for adjustment and the screws need to be rotated more than half a turn, perform rod prism adjustment.)

Step3
After adjustment is complete, seal the screws with adhesive. (Adhesive: Threebond 1401B)

13.2. Rod prism adjustment

Step1
Loosen the two screws as shown in Fig. 2.

Step2
Move the rod prism back and forth along the optical axis to make the focus of the perimeter of the lighting area uniform, and then tighten the screws.

Step3
After adjustment is complete, seal the screws with adhesive. (Adhesive: Threebond 1401B)

Fig. 1

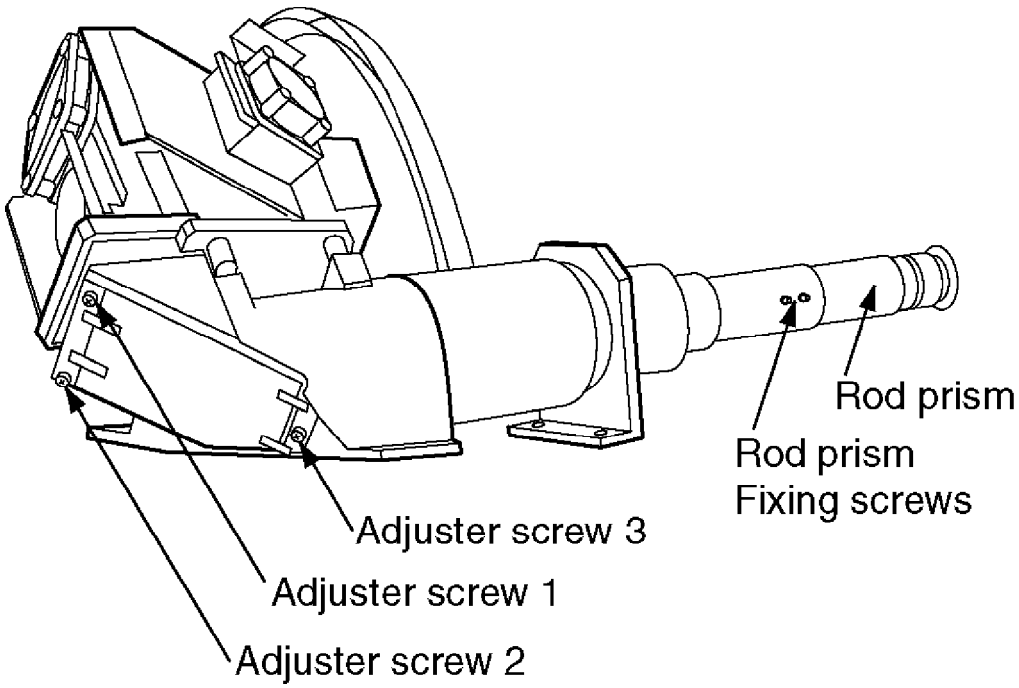
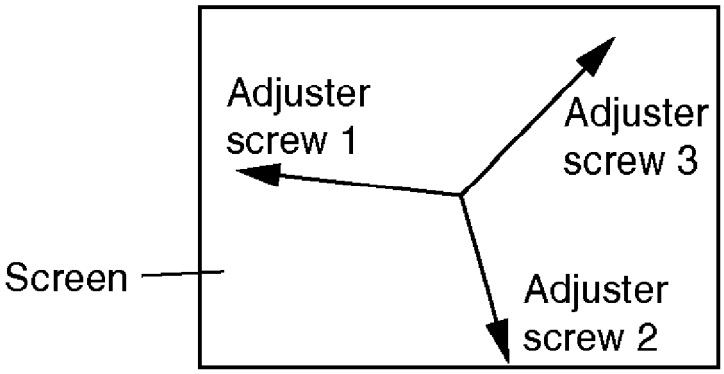


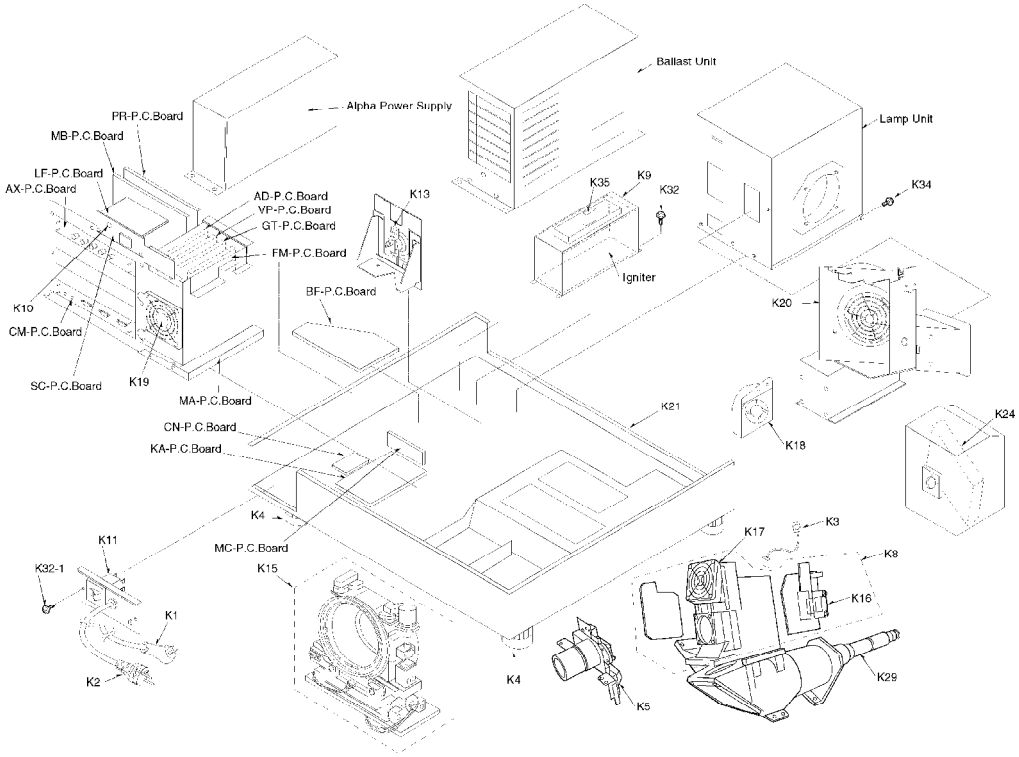
Fig. 2



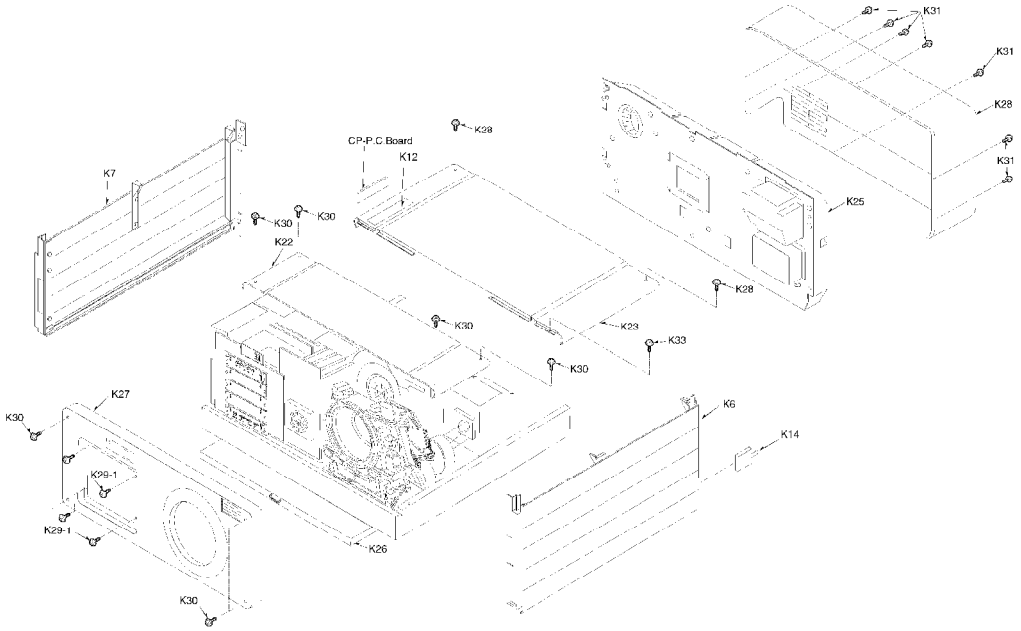
14. Interconnection Block Diagram

15. Exploded Views

15.1. Exploded View (1)



15.2. Exploded View (2)



16. Replacement Parts List

Important Safety Notice

Components identified by the International symbol ⚠ have special characteristics important for safety.
When replacing any of these components, use only the manufacturer's specified parts.

Abbreviation of part name and description

1. Resistor

Example:

ERD25TJ104 C 100KOHM, J, 1/4W

TYPE ALLOWANCE

TYPE	ALLOWANCE
C : Carbon	F : ± 1 %
F : Fuse	G : ± 2 %
M : Metal Oxide	J : ± 5 %
Metal Film	K : ±10%
S : Solid	M : ±20%
W : Wire Wound	

2. Capacitor

Example:

ECKF1H103ZF C 0.01PF, Z, 50V

TYPE ALLOWANCE

TYPE	ALLOWANCE
C : Ceramic	C : ±0.25 pF
E : Electrolytic	D : ±0.5 pF
P : Polyester	F : ± 1 pF
PP : Polypropylene	J : ± 5 %
S : Polystyrol	K : ±10 %
T : Tantalum	L : ±15 %
	M : ±20 %
	P : +100 %, -0 %
	Z : +80 %, -20 %

Note: For G ＊＊ of Ref. No., not indicate illustration of it part on "Exploded Views".
Printed circuit board assembly with mark (RTL) is no longer available after production discontinuation of the complete set.

Ref. No.	Part No.	Part Name & Description	Remarks
[MECHANICAL PARTS]			
K1	K2CA3EZ00001	POWER CORD	For PT-D8500U ⚠
K2	K2CA3FZ00001	POWER CORD	For PT-D8500E ⚠
G1	K4EG12A00002	CABLE E	IGNITER-BALLAST(RED)
G2	K4EG14A00001	CABLE D	IGNITER-BALLAST
K3	TAT111G164Z	THERMISTOR	
K4	TBLG3021	ADJUSTER	
K5	TGAX014	SHUTTER ASSY	
G3	TJSX02900	LAMP UNIT TERMINAl	
K6	TKCF013-2	SIDE CABINET (RIGHT)	
K7	TKCF014-1	SIDE CABINET(LEFT)	
K8	TKGX5009	DMD ASSY	
K9	TKKL5097	IGNITER COVER	
G4	TKPA33902	BLINDFOLD METAL	
G5	TMME026	CLAMPER	
K10	TMM14929	REMOCN RECEIVER	
G6	TMM16473-1	CLAMPER	
G7	TMM6428-1	CLAMPER	
G8	TMM6463-1	CLAMPER	
G9	TMM7464-2	CLAMPER	
G10	TMM7468-1	CLAMPER	
G11	TMX13439	GUIDE	
G12	TMX13440	GUIDE	
G13	TNQE219	REMOTE CONTROLLER	
K11	TNXA001	BREAKER	⚠
K12	TNXX020-1	CONTROL SWITCH	
G14	TPCA62201	REMOTE CONTROLLER CASE	
G15	TPCA78501A	CARTON (BOTTOM)	
G16	TPDA0393	LENS PAD	
G17	TPDF0432	ANGLE	
G18	TPDJ0037-1	CUSHION (UPPER)	
G19	TPDJ0038-1	CUSHION (BOTTOM)	
G20	TPD139464	CUSHION	
G21	TPD169504	P.P BELTE	
G22	TPEH103	CUSHION	
G23	TPE174176	SET COVER	
G24	TQBJ0075	INSTRUCTION BOOK	For PT-D8500U
G24	TQBJ0076	INSTRUCTION BOOK	For PT-D8500E
G25	TQB817002-1	SAFETY SHEET	For PT-D8500U only
G26	TQD1712010	LABEL	
G27	TQDJ18007	GUARANTEE CARD	For PT-D8500U only
G28	TQF14816	LABEL	
G29	TSEG0002	MICROSWITCH	⚠
K13	TSEX0013	BIMETAL	⚠
K14	TSEX8005	INTERLOCK SWITCH	
G30	TSK1027	FERRITE CORE	
G31	TSXF139	CABLE	
G32	TSXF187	CABLE	
G33	TSXL178	FFC CABLE	DMD - P.C.B.(FM)
G34	TSX1565	REMOCON CABLE	

Ref. No.	Part No.	Part Name & Description	Remarks
G35	TSX1598	CABLE	
G36	TSX2505	CABLE	
G37	TUWC029-1	POWER SW METAL	For PT-D8500U
G38	TUWC026-4	POWER SW METAL	For PT-D8500E
K15	TXFED02VJE7	LENS MOUNT ASSY	
G38	TXFEK01VJE7	TEC FAN (R) ASSY	⚠
G39	TXFEK02VJE7	TEC FAN (G) ASSY	⚠
K16	TXFEK03VJE7	TEC FAN (B) ASSY	⚠
K17	TXFEK04VJE7	FAN(For ABSORBER)	⚠
K18	TXFEK05VJE7	FAN(For DMDTM)	⚠
K19	TXFEK08VJE7	FAN(For P.C.BOARD)	⚠
G40	TXFEK12VHX81	MOTOR(SHUTTER)	⚠
K20	TXFEK14VJE7	LAMP FAN BLOCK	⚠
K21	TXFKC02VJE7	BOTTOM BASE	
K22	TXFKC06VJE7	UPPER CABINET (REAR)	
K23	TXFKC98VHX8	UPPER CABINET (FRONT)	
K24	TXFKG02VJE7	COLD MIRROR	
K25	TXFKK01VJE7	DUCT ASSY	
K26	TXFKK02VJE7	AIR FILTER ASSY	
K27	TXFKP01PHWZ	FRONT PANEL ASSY	For PT-D8500U
K27	TXFKP01PHXZ	FRONT PANEL ASSY	For PT-D8500E
K28	TXFKX01PHWZ	REAR PANEL ASSY	For PT-D8500U
K28	TXFKX01PHXZ	REAR PANEL ASSY	For PT-D8500E
G41	TXFPC01PHWZ	CARTON (UPPER)	For PT-D8500U
G41	TXFPC01PHXZ	CARTON (UPPER)	For PT-D8500E
K29	TKGX5004	OPTICAL TUBE	
K29-1	XSB3+8FC	SCREW	
K30	XSB4+8FC	SCREW	
K31	XSN4+12FZ	SCREW	
G43	XTB4+10J	SCREW	
G44	XTB4+12A	SCREW	
K32	XTB4+12J	SCREW	
G45	XTB4+16JFZ	SCREW	
G46	XTV3+10J	SCREW	
G47	XTV3+6J	SCREW	
G48	XTV3+8J	SCREW	
G49	XYN3+C10	SCREW	
G50	XYN3+C6	SCREW	
G51	XYN3+C8FZ	SCREW	
G52	XYN3+F10	SCREW	
G53	XYN3+F8	SCREW	
K32 -1	XYN4+C10FZ	SCREW	
G54	XYN4+E8FZ	SCREW	
K33	XYN4+F10	SCREW	
G55	XYN4+F15	SCREW	
G56	XYN4+F20	SCREW	
K34	XYN4+F20FZ	SCREW	
G57	XYN5+F10	SCREW	
G58	XYN5+F20FZ	SCREW	
G59	XYN6+F10	SCREW	
G60	XYN6+F15	SCREW	

Ref. No.	Part No.	Part Name & Description	Remarks
G61	XZB11X22C05	POLY BAG	
[CAPACITORS]			
K35	ECWS22105JK7	CAPACITOR	For Igniter
[OTHERS]			
RTL	N0AE6ZL00001	CIRCUIT BOARD	ALPHA POWER SUPPLY ⚠
RTL	TNAD016-1	IGNITER	⚠
RTL	TNAD019	CIRCUIT BOARD CN	STANDBY POWER SUPPLY ⚠
RTL	TNAD021	BALLAST UNIT	⚠
RTL	TNPA1568	CIRCUIT BOARD CP	
RTL	TNPH0285	CIRCUIT BOARD MA	
RTL	TNPH0411	CIRCUIT BOARD MC	
RTL	TXN/ADVHX8	CIRCUIT BOARD AD	
RTL	TXN/AXVHX8-K	CIRCUIT BOARD AX	
RTL	TXN/BFVHX8	CIRCUIT BOARD BF	
RTL	TXN/CMVJE7	CIRCUIT BOARD CM	
RTL	TXN/FMVJE7	CIRCUIT BOARD FM	
RTL	TXN/GTVJE7	CIRCUIT BOARD GT	
RTL	TXN/KAVJE7	CIRCUIT BOARD KA	⚠
RTL	TXN/LFVJE7	CIRCUIT BOARD LF	
RTL	TXN/MBVHX8	CIRCUIT BOARD MB	
RTL	TXN/PRVJE7	CIRCUIT BOARD PR	
RTL	TXN/SCVHX8	CIRCUIT BOARD SC	
RTL	TXN/VPVHX8-K	CIRCUIT BOARD VP	

※1：These modules are optional (sold separately) parts.
Descrebed parts number is in ( ) replacement parts number.

LAMP ET-LAD8500
SOCKET
IGNITION BLOCK
IGNITER
TNAD016-1
-HV
-
IGN
LAMP UNIT

OPTICAL TUBE UNIT
(RED) DMD™ J1 J2 J3
(GREEN) DMD™ J1 J2 J3
(BLUE) DMD™ J1 J2 J3
Temperature Sensor

DETECT SW
DETECT SW
MOTOR (SHUTTER)
LENS (OPTION)
MOTOR (FOCUS)
DETECT SW
DETECT SW
MOTOR (H.SHIFT)
DETECT SW
DETECT SW
MOTOR (V.SHIFT)
DETECT SW
DETECT SW

THERMOSTAT SWITCH
Bimetal
Fan for Duct
F7
F1
F2
F3
MS
MF
MH
MV

IGN
+ OUT
- OUT
AC IN
J71
POWER SUPPLY FOR XENON LAMP
Ballast Unit
(TNAD021)
LL
TM
J72
J75

LF9
LF3
LF18
LF19
LF23
LF24
LF25
LF2
LF1
LF12
LF13
LF16
LF27 NC
LF5
LF4
LF8
LF6

FAN FOR ABSORBER
F4
FAN FOR PRISM
F5
MOTOR CONTOROL .FAN
FAN FOR CIRCUIT
FAN FOR LAMP
F8
LF Power Supply for electromotion lens/fan
TNPA2010
(TXN/LFVJE7)
Interlock Switch 1
TOP COVER OPEN
Interlock Switch 2
BACK COVER OPEN

REMOTE. 7SEG
SC Remote Receiver 7 Segment LED
SC1 TNPA1453
(TXN/SCVHX8)

Option Module
PC-TMDS INPUT MODULE ※1
DT TMDS Digital signal Input
TNPA1466(ET-MD95T)
DT1
Serial Digital Signal Input Module ※1
SS 480i/576i Digital Signal Input
TNPA1468(ET-MD95SD1)
SS1
NTSC, NTSC 4.43, PAL SECAM, PAL-M, PAL60, PAL-N Input Module ※1
AW Video/ S-Video Input
TNPA1465 (ET-MD95VM2)
AW1
Serial Digital Signal Input Module ※1
SP 480p/480i/576i Digital Signal Input
TNPA1469 (ET-MD95SD2)
SP5
HD SDI Module ※1
SH HD Digital
TNPA1470 (TW-ET95SD3)
SH2

NC M59
M68 NC
M69 NC
M70 NC
M54
M71
M66
M67
M53
SUB MOTHER
MB Mother Board B
TNPH0286
M52 (TXN/MBVHX8)
M64 NC
M63
M62 NC
M61
M55
M56
M57
M58

ANALOG RGB INPUT UNIT
AX Analog RGB Input Module
TNPA1802 (TXN/AXVHX8-K)
AX1
M51

CPU , D-SUB
CM CPU
TNPA1452AB
(TXN/CMVJE7)
CM1
M81
SUB MOTHER
MC Mother Board C
TNPH0411
M82

A/D CONVERTER
AD A/D
TNPA1455AB
(TXN/ADVHX8)
AD6
AD3
AD4
AD5
AD1
AD2

POWER SUPPLY
Alpha Power Supply
(NOAE6ZL00001)
AC IN
AL 1
+5 V SLOT1
+3.3 V SLOT2
+24 V SLOT3
+8 V ,-8 V SLOT4
+15 V ,-15 V SLOT5

PR1 PR7 PR6 PR18 PR2
PR17
PR13
PR Voltage Abnormality Detection
TNPA1609AB
(TXN/PRVJE7)
PR12
PR5
PR14 PR8 PR16 PR10

KA2 KA11
KA10
LINE FILTER
KA Power Line Filter
TNPA1471AB
(TXN/KAVJE7)
KA4
KA1 KA3 KA6 KA7
AC 200 V-240 V
50Hz/60Hz
(Single-phase 3-wire)
Breaker ⚠ (TNXA001)
CN2 CN1
POWER SUPPLY
CN Standby Power
⚠ (TNAD019)

M15
MAIN MOTHER
MA Mother Board A
TNPH0285
M10 M9 M7 M8
M16 M14 M25 NC M20 M13
M17
M11 M12
M5 M6 M3 M4 M1 M2

CONTROL PANEL
CP1
SUB MOTHER
CP Relay
TNPA1568
CP2
CP

BF1 BF2
BUS BUFFER
BF Digital Bus Buffer
TNPA1454
(TXN/BFVHX8)

VP1 VP2
RESIZE(VIDEO)
VP Video Resizing
TNPA1458AB
(TXN/VPVHX8-K)

GT1 GT2
RESIZE(GRAPHIC)
GT RGB Resizing
TNPA2012
(TXN/GTVJE7)

FM1 FM2 FM13 FM3 FM4 FM9 FM5 FM6 FM10 FM7 FM8 FM11
FM Formatter I/F
TNPA2009

1 2 3 4 5 6 7 8